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A LIGHT MODEL FOR PRODUCT & SOLUTION DEVELOPMENT PROJECTS

Platform Technical Management Medium Bore

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Tämä opinnäytetyö tutkii projektinhallinnan vallitsevaa tilaa Platform Technical Management Medium Bore:ssa. Tutkimuksen tavoitteena on pienten projektien projektinhallintaprosessin kehitys ja parannus.

Tutkimuksen teoreettisessa osuudessa on tarkasteltu kirjallisuutta ja tehtyjä tutkimuksia projektinhallintaprosessien parannuksen ja tehostamisen osa-alueilta. Käytännön osuus käsittelee enemmän projektinhallinnan vallitsevaa tilaa ja haasteita liittyen pienten projektien hallintaan.

Tarkoituksena on tehostaa prosessia ja lisätä käytettävän projektienhallinta metodien käytettävyyttä ja arvoa.

Tutkimuksessa lähestytään haasteita tutkimalla yleisesti projektinhallinnan tehokkuutta teorian ja käytännön kannalta katsottuna. Erityisesti tutkitaan tehokkuutta pienemmissä projekteissa ja haasteita liittyen prosessien kehitykseen ja käyttöönottoon.

Tavoitteena on löytää paras mahdollinen ratkaisu pienempien projektin tehokkaaseen läpiviemiseen. Osana tutkimusta arvioidaan myös onko pienten projektien läpivieminen projektiryhmän sisällä, ilman nimettyä projektipäällikköä, järkevää ja kannattavaa.

Tutkimuksen empiirinen lähestyminen, joka käsittää haastatteluja ja havaintoja, osoittaa että parannuksia tarvitaan ja tiettyjä muutoksia tulisi sisällyttää uuteen prosessiin. Pohjautuen kerättyyn tietoon, teoreettiseen ja praktiseen, uusi prosessi voidaan luoda projektinhallintaan.

Tämän tutkimuksen tuloksena, Platform Technical Management Medium Bore saa uuden prosessin ja mallin (light model) käytettäväksi pienempien projektien hallintaan, jonka avulla mahdollistetaan kyseisten projektien läpivienti tehokkaasti läpi koko projektin elinkaaren.

Avainsanat	Light model, projekti, prosessi, parannus, tehostaa, arvo

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ABSTRACT

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This research examines the prevailing status of the project management in Platform Technical Management Medium Bore. The objective of the study is to improve the project management process for smaller projects.

The theoretical study reviews literature and the earlier studies on process improvement and efficiency of the project management area. Empirical study examines the prevailing situation of the project management at the case company and the challenges relating to managing smaller projects.

Objective is to make the process more efficient and add value for the project performance and management.

The approach of the research was to explore commonly project management effectiveness from theoretical and practical points of view. The focus was in the effectiveness in small projects and the challenges relating to process creation and introduction.

The aim was to find the best solution for carrying out the small projects. Also, the research evaluated if handling smaller category projects inside the project group, without specific project manager, is feasible and reasonable.

The empirical study, with observations and interviews, showed that improvement is needed and some changes should be implemented to get more out from the process. Based on the gathered theoretical and practical information a new process can be created for project management.

As a result of this research, Platform Technical Management Medium Bore gets a process and a template (a light model) to be used for management in the small projects so as to perform more effectively through the lifecycle of the project.

Keywords Light model, project, process, improvement, efficient, value

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ABBREVIATIONS

DF	Dual Fuel. Dual-fuel engines can operate on both gas and heavy fuel oil/marine diesel oil.
EEQ	Engineered Equipment Delivery. Engineering and delivery of equipment for power plant. Normally includes commissioning of the equipment.
EPC	Engineering Procurement Construction. Power Plant turnkey delivery concept.
EPCM	Engineering, Procurement and Construction Management. Supplier carry out all investment related, i.e. design, coordination and management according to agreements made with the customer.
EPI	Engineering, Procurement and Installation. Supplier carry out project Engineering, Procurement and Installation according to agreements made with the customer.
IDM	Integrated Document Management. The Wärtsilä Integrated Document Management solution (IDM) is a global platform that supports a common way of working and enables secure sharing of business documents in company, thus improving productivity and the use of knowledge globally.
PM	Project Manager
SG	Spark ignited gas engine. Four-stroke spark ignited gas engine working according to the Otto process and the lean burn principle.
W31	Wärtsilä 31 (Cylinder bore size 310mm)
W32	Wärtsilä 32 (Cylinder bore size 320mm)

W34 Wärtsilä 34 (Cylinder bore size 340mm)

1 INTRODUCTION

Project management appears strongly at Wärtsilä. It is recognized as a very important element of the company and it creates a body for the used processes. By following strict guidelines according to the set project management processes, the company can answer for the customer needs more effectively.

Platform Technical Management Medium Bore monitors and develops all the technical features of the Wärtsilä Medium Bore inline and V -engines. These engines are W31, W31DF, W31SG, W32, W34DF and W34SG. Development of the product is quite often done by using project management to secure good control and effectiveness of the overall process.

Normally project managers take care of the follow-up and managing of the projects. Because there are many projects ongoing, in many different categories by scope, there is a need to have a so-called “light model” for smaller projects. This is because it has been noticed that to manage a smaller project in its scope there is necessarily no need for a specified project manager to execute the project effectively and in good control. Instead it would be enough to have clear instructions and a process to follow to be able to manage the project inside the platform project group. This way project managers could concentrate more on to demanding and larger projects and the smaller category projects could be managed inside the project group personnel, securing also that all the information and data is stored, and that the important aspects are evaluated and handled during the project.

Wärtsilä is a global leader in advanced technologies and complete lifecycle solutions for the marine and energy markets. By emphasising sustainable innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers. The company has operations in over 200 locations in more than 70 countries around the world. Wärtsilä is listed on Nasdaq Helsinki. /20/

More than 3,500 people works in Finland (in Helsinki ~280, in Vaasa ~2,900 and in Turku ~350 people). The main functions/organizations are Marine Solutions, Energy Solutions, Services, Research & Development, Engine Assembly, Expertise and support functions. The corporate head office is in Helsinki. /22, 23/

Platform technical management enables products and features to be made and developed according to the defined strategy and requirements. The platform takes care of product quality assurance by monitoring and developing the engine technical features in accordance with defined guidelines and continuous improvement.

Technical information is the responsibility area of the platform. To ensure and create up-to-date technical data is very important element. Up-to-date technical data enables sales and operating of the engines effectively.

Engines can be customized and all non-standard solutions are evaluated and sold via technical management to ensure solution reliability and technical suitability.

Value and compliance of the product are ensured by implementing technologies into platform development and management. Continuous improvement of the platform ensures high value for the end user of the products and gives strong ground for the advanced future products.

Platform technical management is the responsibility of the program and project management for the platform development in accordance with defined guidelines and continuous improvement. A very important element of the process is to follow the given instructions and guidelines. This way technical information and data from the development process is recorded and stored.

1.1 Research background

Platform Technical Management uses currently A (Large), B (Medium) and C (Small) classification category for Product & Solution development projects. A is

the largest and C is the smallest by its scope. Basic process/guidelines are created for all categories separately by taking into account the scope of the project.

Processes and guidelines created for the A, B and C category project needs normally project manager to managing the project. There is a need to have a lighter process to able to handle smaller projects more effectively. The new process should make the managing of the smaller projects easier and it should be easy for a person not involved on the daily basis to project management processes and tools, i.e. engineers and experts.

It should be secured that all the relevant functions are included in to the new process and that the gathered experiences and information is registered and stored during the project. Naturally this all should be done by following closely the principles and guidelines of the company policies.

1.2 Research problem and questions

The research problem is how to handle small category projects effectively and is it possible to do without strongly structured project management.

The aim is to find answers to questions:

- What is the efficiency and value of the current processes in small projects?
- What would be the minimum activities and documentation level to make it possible to run small projects through effectively and in good control?

At the end of the thesis, comments and proposals can be given for the improvements and further recommendations for the process to run smaller projects in good control, which will ensure that all the needed documentation is created and validated and high-quality products are delivered to the end user.

1.3 Research scope

The scope of the thesis is to study the current situation at how the current project management process is working and what are the pros and cons of it. The objective is to create new process for the smaller projects and to test the created process in practise.

The goal is to gain a clear understanding of what the working elements are in the current processes and what the major bottlenecks are and what would be the best solution to make it possible to carry out these smaller projects more effectively. The aim is also to evaluate if handling smaller category projects inside the project group is feasible and reasonable and what kind of problems and challenges might occur during the project.

Also an additional aim is to make a research and create an overview of the written theoretical data and earlier made researches around this topic and try to find different methods and experiences how these kinds of processes and possible challenges are handled. The theoretical data should be analysed and seek to find possible applicable methods and ways of working to be implemented in the new process.

This thesis examines more the idea of reducing the project organization to the minimum size and removing all the extra, limiting factors from the process in a company where the project orientated working environment already exists. This way the smaller project would be handled more effectively and the used time will be reduced. Additionally, communicating inside the project group will be enhanced, and only valuable and necessary data will be recognized, created and stored, which in turn will release resources to other projects.

Sometimes project organization and project orientated way of working is basically missing or experienced as distant and reluctant. Processes and given instructions are experienced as too complex for efficient and meaningful usage. The aim is to

enhance culture and approval towards well managed, project orientated working environment and processes.

Based on the gathered information, a solution recommendation for the project management process can be created and possible problem areas can be removed or fine-tuned to make it possible to carry out projects more effectively.

The created new light model will be tested with the first possible new project. The results, the gathered information and experiences will be then evaluated and the analysed data can be then used to develop the process further, if any need for that is recognized.

1.4 Research structure

The thesis is divided in to seven main chapters. The three first chapters are the theoretical study of the research. The four last chapters handle more the practicalities related to new light model creation, findings and the gathered data, how created processes are working and how they are adding efficiency and value to the small project management process.

The second chapter explains the theoretical framework for the research. Projects, project management principles and the main objectives are introduced generally. The concept of the efficiency and value of the process is opened.

The third chapter explains the frame of the used research methods. It gives perspective on how the research problem is approached, how data and information is collected (methods, sources, techniques) and how the data is utilized in the end.

The fourth chapter gives a better and deeper overview of the project management processes used currently in the company, the different project categories and differences between them, and how certain category is chosen is introduced more accurately. The fourth chapter also examines the empirical side of the research, how new processes are created and what are the supporting literary facts and prac-

tical aspects to approach new processes and way-of-working. The overview of the prevailing situation and what have been the challenging areas of the project management. The collected data and experiences are compared to new process, created new light model, when it is introduced and improvements are implemented into use.

The fifth chapter is dedicated to the introduction and the testing of the new process. Observations and practicalities are opened when the new working model is taken into empirical trial by testing it in some of the new projects, suitable in its scope and category. The main functions and areas are opened more deeply. Evaluation of how the main areas and functions of the project management are handled in the light model, and arguments for that are also included in this chapter.

Discussion and analysing of the research results is done in the sixth chapter. Experiences and opinions received from the interviews are discussed/reviewed. Also outcome and findings from the literature review are a analysed here. The gathered information is brought to a more pragmatic consideration and possible options are evaluated. The strengths and weaknesses of the new process are discussed and evaluated.

Conclusions are presented in the seventh chapter. The overall results of the research and introduction of the new improved process is given. Also, the possible restrictions appeared during the research are presented. The possible following, additional studies and possibilities from the area are discussed at the end of the chapter.

1.5 Research challenges

Theoretical information is quite difficult to find specific for the smaller projects. Information on the project management area can be found easily and there is a plenty of material, but mainly all the literature and journals concentrate on to mid-size or large projects. Small projects seem to be handled basically without any well-structured processes or tools.

Theoretical data is also quite general, meaning that there cannot be pointed out any exact method or process suitable for smaller projects. The given methods and processes could be implemented in a higher level, but any strict rules/suggestions, based on empirical experience is difficult to find from the area of product development.

1.6 Limitations of the research

A new process is created only for one company and one department, so it cannot be said how, and if, it will work in other departments of the company also. The process is created for product development, so to implement this to some other context might create a need for extensive modification of the process.

Empirical experiences and opinions are collected from the area of product development, so if the created process is going to be implemented to a wider area in the company, it is possible that some additional interviews/data collection would be needed.

2 THEORETICAL FRAMEWORK

2.1 Project

“A project has a single set of objectives; achieving them represents completion of the projects. These objectives often involve research, development, design, manufacture, and construction and/or installation of hardware, but they may also include completion of a study, development of computer software, or similar activities not involving hardware. Activities centering on hardware may be treated as a separate project for a while and then included in the normal stream of business; for example, the market research, design, initial production, and initial market launching of a product may be treated as a project, after which the project organization disbanded and the product managed as a part of normal activity. A project has a finite and fairly well defined life span. It is not an activity that will go on and on as a normal part of the organization´s existence. It is well to keep in mind that although project management disciplines and practices are part of managing any continuing organization, all individual projects come to an end. They may be replaced, but always by projects that are equally distinct”. /7/

A project has a group of people dedicated fully or at least primarily to project work. They can be from different sections of the organization and they are required to work closely together to fit their own expertise activities together to achieve project goals. /7/

An activity is not a project until top management thinks it is. Only when the senior managers controlling the resources necessary to accomplish the assignment are willing to consider it a project and make the necessary delegations of authority is there likely to be a useful application of project management. /7/

2.2 Small project

Definition for a small project can be sometimes difficult to determine. It varies quite often company-wise, because all the companies have their own rules and

definitions to determine projects. If common process to handle small projects doesn´t exist, it is even more difficult to say which project should determine as a small and which not.

“Small projects have unique challenges over larger ones. Because they're small, it's tempting to skip the planning process and start executing the work. This phenomenon is especially true if projects perform tasks similar to previous work, which in turn leads to a natural tendency to skip planning and to start doing the work. Then, essential steps are sometimes omitted, done out of order, or done later than desired. Likewise, costly mistakes can occur when risks are missed by executing too soon. A small project that isn't planned enough can also ignore critical stakeholders, causing both resentment and rework”. /11/

Small projects are experienced to be relatively easy, but derogating from this there is no one particular way to define when a project is determined as a small project. In some context, *small* could be defined based on the cost of the project. Cost is quite relative and depends heavily on the income of the company. *Concept small* could be also be defined for example by time used/needed. /16/

A small project can be a part of the larger project. For example, if a team manager is liable for planning and controlling of the specific project activities and also reporting project results to the project manager, the team manager is basically running a small project. Most smaller projects concern changes in organizational processes or improvements to existing systems. /16/

2.3 Project management

The Project Management Body Of Knowledge (PMBOK) definition for project management is:

Project management is the application of knowledge, skills, tools and techniques to project activities to achieve project requirements. Project management is accomplished through the application and integration of the project management

processes of initiating, planning, executing, monitoring and controlling, and closing. /10/

The first and the most important rule of project management is that the persons who should accomplish the work activities should be involved when planning the project. /6/

A project can be considered to be any series of activities and tasks that:

- Have a specific objective to be completed within certain specifications
- Have clearly defined start and end dates
- Have financial limits (if applicable)
- Consume human and non-human resources (i.e., money, people, equipment)
- Are multifunctional (i.e., cut across multiple functional lines) /4/

Project management, in turn, involves project planning and project monitoring and includes such items as:

- Project planning
    - Definition of labor requirements
    - Definition of quantity and quality of work to done
    - Definition of resources needed for the project
- Project monitoring
    - Tracking of the activities
    - Comparing actual outcome to predicted outcome
    - Analyzing impact
    - Making adjustments /4/

Successful project management can then be defined when having achieved the project objectives such as:

- Within time

- Within cost
- At the desired performance and/or technology level
- While utilizing the assigned resources effectively and efficiently
- Accepted by the customer /4/

Clear benefits from project management are:

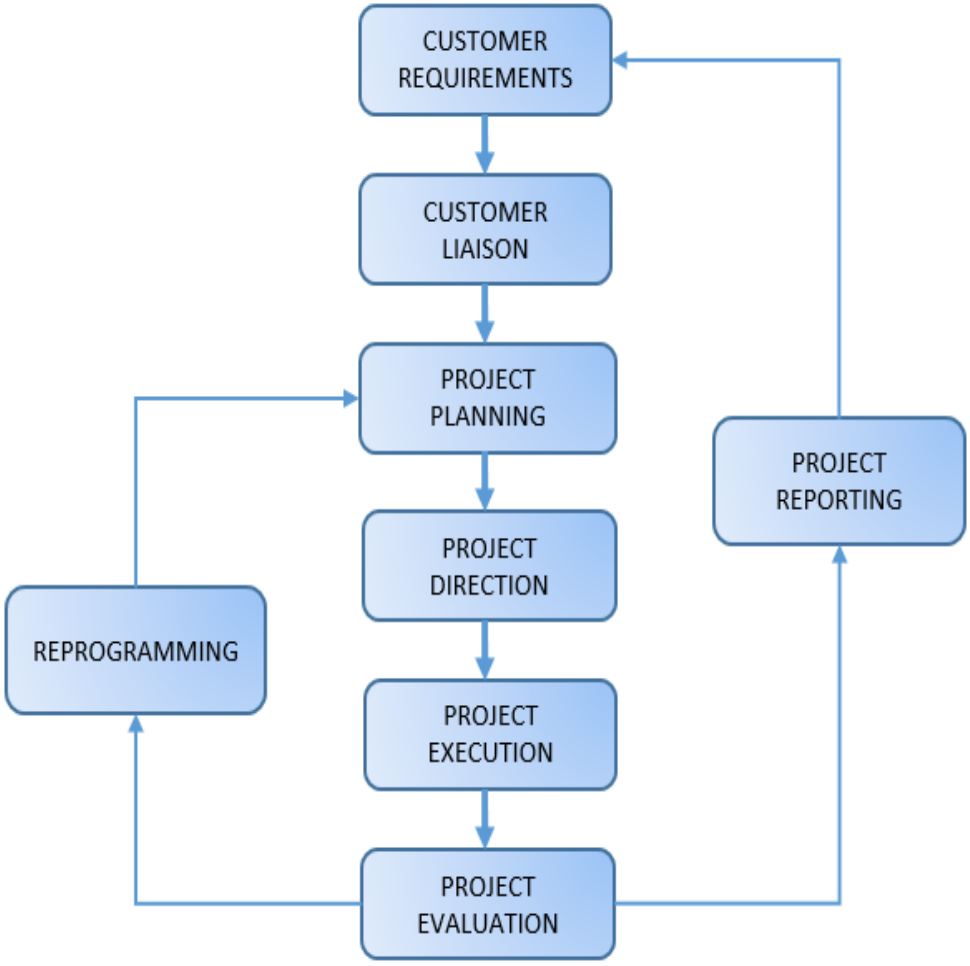
- Recognizing of functional responsibilities to ensure that all activities are accounted for, regardless of changes in personnel
- Minimizing the continuous reporting (or need for it)
- Recognizing of time limits for scheduling
- Recognizing of a methodology for trade-off analysis
- Measurement of readiness against plans
- Early identification of challenges so that corrective actions can be implemented
- Improved estimating capability for future planning
- Knowing when requirements cannot be met or will be exceeded /4/

Unfortunately, the benefits cannot be achieved without overcoming hindering facts such as:

- Project complexity
- Customer´s special requirements and changes to scope
- Organizational restructuring
- Project risks
- Changes in technology
- Forward planning and pricing /4/

After a project is launched, all the activities are likely to be going on simultaneously, but for different parts of the project. The model shown (Fig. 1.) is a useful way of looking at and thinking about project management, and of bringing order into its execution. /7/

Figure 1. Project management functions /7/



Key functions of the project management:

1. *Customer requirements:* Basis for the project. Everything begins from the customer needs.
2. *Customer liaison:* The primary objective of a customer liaison is to reach clear agreements on what is to be done on the project, a definition of the characteristics of the project end products, key schedule dates, and the associated funding. /7/
3. *Project planning:* The project manager and his team produce project plans that contain a work statement, end-product specifications, budgets, sched-

ules, and implementation plans that will be the basis for project execution. /7/

4. *Project direction:* Project direction is merely an extension of project planning; the project manager simply issues the project plans with a directive to execute them. Always it is not that simple, for it is often desirable to issue direction for only a part of the period covered by the plans. Furthermore, it often turns out that project direction should be more specific and more detailed that corresponding sections of the plans.
5. *Project execution:* Execution of project takes place after planning has identified their scope and direction has authorized their accomplishment. During these phases the tasks have been identified in such a way that they can be assigned to the departments of the organization.
6. *Project evaluation:* Evaluation is the continuing process of assessing the progress of the project. It assess status at the moment but also extrapolates from that assessment to forecast ultimate project success.
7. *Reprogramming:* Reprogramming proceeds directly out of the evaluation phase, in which accomplishments to date and estimated future progress are compared with project plans and directives. Variances are analyzed during the evaluation activity to determine their magnitudes and causes. Then reprogramming can take place to correct them.
8. *Project reporting:* Although reporting is logically the outcome of the evaluation and reprogramming activities, it really takes place from the very beginning of the project, and should be approached on a positive basis by all members of the project team. It should be looked as a constructive opportunity to describe project successes and to get understanding and help for project problems. /7/

Because of the potential for change, the project management plan is iterative and goes through progressive elaboration throughout the project´s lifecycle. Progressive elaboration involves continuously improving and detailing a plan as more-detailed and specific information and more accurate estimates become available.

Progressive elaboration allows a project management team to manage to a greater level of detail as the project evolves. /10/

Effective and well-structured project management is vital for a large technology company to succeed in a business. Generality of the workload comprises multiple tasks and/or assignments which should be performed simultaneously, side by side, by having the resources and timeline in a good control. To be able to handle this entity, an effective and well-structured project management is necessary for the succession.

International project management standards are:

- ISO 21500:2012 – Guidance on project management
- PMBOK – **P**roject **M**anagement **B**ody **o**f **K**nowledge
- PRINCE2 – **P**rojects **in C**ontrolled **E**nvironments
- ICB - **I**PMA **C**ompetence **B**aseline

The above-mentioned standards help to ensure that projects are executed with a certain quality standards, using clearly defined processes and consistent documentation methods. /1/

To stay a high level in project management, an organization should have a clear mindset towards project orientated culture, and dedicated way towards continual improvement of the culture and methods. /21/

As a result, it can be concluded that all organizations should be looking for ways and methods to improve their project management processes to be able to achieve higher level in maturity and quality. /21/

2.4 Project management in small projects

“For larger projects, success is measured by product and project quality, timeliness, budget compliance, and degree of satisfaction. Larger projects must balance competing project constraints, including scope, quality, schedule, budget, re-

sources, and risk. For small projects, success can be defined as on time, within budget, and meeting the requirements of the project stakeholders. Managers of small projects need to be concerned with meeting this triple constraint, with an understanding that other project constraints may also need to be managed". /16/

The value project management offers is the use of standard processes and tools. Project management is even more valuable when the processes and tools can be tailored to fit the different types and sizes of small projects. By using methodology, the project manager is more prepared to define and manage the project scope, obtain project requirements, and provide ongoing communications. Stakeholders are engaged early and expectations are known. Add to this the ability to produce realistic estimates and schedules, and to effectively manage issues and risks, you have a means of managing project constraints. /16/

What is creating a challenge is that most of the project management tools and methodologies are created for larger projects. To exploit these to smaller projects, and its activities, is unwieldy and meaningless. The need is to have process and tools to be able to use time most efficient way, without wasting time to irrelevant steps and actions. /11/

When project management methodologies are used on smaller projects, it will provide an operating model for new projects and gives a good base for functions. Mostly smaller projects are quite similar by its scope and the structure of the activities and steps is quite homogenous. It would be good to have a template or clear process for future projects to be able to operate in a more controlled way. Using a template and/or model for smaller projects will allow the project manager to use time in a more efficient way by concentrating on more important and relevant functions and it gives good basis for future improvements for the process. /16/

Challenges in small project management:

1. *Planning.* Normally it is thought small equals easy. Because of the perception, adequate time is not set aside for detailed planning. A plan provides direction for the project, is a means for control, and is a communication tool for the sponsor and other stakeholders.
2. *Low prioritization.* Small projects often have a low priority within the organization. The project has low visibility and is often less important than larger projects. Connecting the small project to the organization´s goals gives the project a stronger identity among the team members.
3. *Inexperienced project teams.* Small project rarely has a dedicated project team and have difficulty obtaining key resources. Often a small project is staffed with inexperienced or less-skilled team members. Having an inexperienced team is also an opportunity for the project manager and a team to learn, and quite often inexperienced members are eager to try new things more actively.
4. *Project manager responsible for multiple functions.* The project manager might have to perform multiple functions and could sacrifice project management for the sake of getting the work done.
5. *Process and tools.* Using the processes and tools is a challenge because in many cases they are not available for small projects. In addition, it is a mistake to assume that if the process and tools work for large projects, they can be applied to small projects without modification. Using more process that required is time-consuming and frustrating. Small projects need a short turnaround time. If plans cannot be produced quickly and key information cannot be communicated rapidly, the project is hurt. What usually happens is that the project manager moves forward without thoroughly planning the work and quickly loses control. /16/

2.5 Efficiency and value of the project management

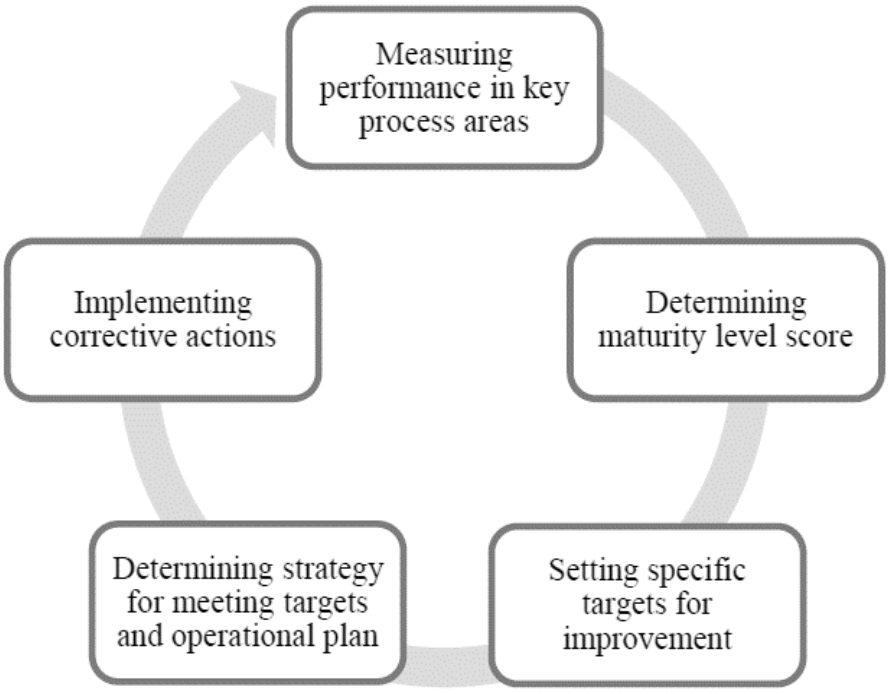
To be able to operate effectively in a challenging and constantly “living” environment, organizations and companies are more and more challenged to take more

focused measures considering the usage of their most important resource – their people. /19/

Teams working efficiently are accustomed to working under good control with well-defined priorities. These teams are used to having clear ways of active in a discussion about the project plan and objectives. Project team members individually should have a clear understanding about their priorities in relating to the project objectives, and also the impact for the overall project success and how to achieve the project success and objectives. /5/

To be able to achieve a more effective and valuable working environment, it should be aimed towards personal and entrepreneurial development and growth. Actions and development of the process should be continuous (see Fig.2), instead of just to performing in a task-like improvement without sustainable solutions and objectives for the future.

Figure 2. Model for continual improvement of project management processes. /17/



Value itself, as a concept, can divide opinions quite widely and everybody can experience value in many ways. There exist different opinions on what value is, and where and how it is formed.

The concept of value is to improve the *value*, despite what is analyzed or studied. We all have our own thoughts and opinions about what affects most the value of a deliverable project, product or service. Therefore, the understanding of *value* can differentiate quite widely between persons. /19/

Mainly the structure of the value, or how it is structured, based on a person´s own personal set of values and the elements experienced and learned throughout life, in personal life as well as in the working environment. In other words, each of us as a person can experience in very different ways what value is and how it should approached as a phenomenon. We can also experience and feel differently about how we can support others to find a meaning for the value and how to improve and cherish it instead of just using it as a trendy word to spread to the environment and people around us.

Value measurement consists of four basic elements which are normally is used to determine the value of the object; *Time, Cost, Performance, Risk*. /19/

Most organizations have a clear target to achieving higher levels in value relating to delivery of the products and services to their customer; nevertheless, quite rarely that optimum value is achieved. /19/

It might be that especially because of interpretation differences, the optimal operating mode, i.e. the value of the process, is quite seldom achieved. Especially in a project orientated environment, sharing and combining of visions, experiences and features is vital to being able to achieve the best results with a quality-conscious in mind, in performance as well in productivity.

How to implement value measurement elements to your own organizations functions is then challenge of its own area. Like in case of the other aspects, for this

can be find on many different opinions and attributes also. Everyone has to fit this to their own process and find or create a reasonable way how to approach the determining of condition and status of the value and at what level it is in the existing process. When estimating or measuring the value of the process, it should always be done it objectively and evaluate, not just from close, but from a distance, what are the results and in a way, simply said "has the customer received what they have paid for and what they have ordered; is our effort is serving the purpose?".

Too often these days organizations and companies tend to set internal value measurement (like products and services) ahead of their customer. This kind of behaviour could lead to negative results. /19/

When creating and building a project management process, a high value should be given to facts, and in addition this will give better tools and ability to answer for customer needs so that the process will give tools and ability for the company to perform effectively and maintain high quality of services towards the end customer, thereby improving the overall corporate image. When the entirety and target of the project stay clear and transparent, it not only raises the performance level, but it will enable handling and managing of the possible new project activities simultaneously in a more effective way, minimizing delays causing confusion and misunderstandings.

When the project requirements and scope are well-defined, functions and operations can be focused better towards the actual performance in the project. This enables to achieving the project objectives faster by providing deliverables in a more efficient way within the time and cost. /19/

When creating *value* is very important to remember to maintain and develop the right kind of attitude, because if the project and process suffers from the lack of attitude, additional to the fact that project and its personnel will suffer, also the whole company and customer will suffer and this may be lead to severe consequences for the company´s future. Value in a process should be considered more

as a motivating factor to person to performing their assignments, instead of they are experiencing this as repugnant, making work slow and challenging.

Attitudinal problems can take the value too far to reach and makes it unachievable. Our attitudes can support our adopted behaviour too strongly and because of this it is difficult to supersede accumulating obstacles. /19/

When people are learning, and developing individually, also the company and organization learns and develops. When individuals are sharing their knowledge with each other, will it make learning communal and more efficacious. This will improve and increase considerably both, individual and organisational development. /25/

“Process management is a social learning process that helps groups to identify and clarify their most suitable goals and the means to achieve them. It is oriented towards change, the future and the needs of society or the group or organization/community. Process management requires participants to be aware of the significance, productivity and creativity of group processes, and of the influence of power relationships within and between these processes. It is characterized by an uncertain environment. It seeks to empower participants, not manipulate them, through implementing and facilitating a work process designed to meet organizational/community management purposes. Process management guides the flow of events without controlling the outcomes”. /25/

To strive for process improvement is an advisable way forward and good path for the future operations to be able to do things better, more economically and more effective in time. /3/

2.6 Gate -model

Gate -model is project management tool where project sections are divided in to different phases, i.e. gates. A gate´s function is to be a decision point where is decided if project should proceed onwards to the next gate or not. A decision is

made according to prevailing situation and information on, whether a project can or should be continued. Normally a manager or a steering committee makes the decision. The decision relies heavily on to the financial status and planned actions showing what is needed for achieving success in the ongoing project. The gate model can be also helpful in reducing the complexity of the project by splitting the project into clearer and to more manageable sections and areas. /27/

The gate -model is especially functional when developing new products, changing a process or for improvements. The number of the gates to be defined/used depends the scope of the project. Normally, a so called full size project has five gates. The title/purpose of a gate can vary a little depending on the company and/or the project where it is used. For smaller projects, not all the gates are needed.

There are certain challenges when product development projects are planned. Product development can be sometimes be quite creative by its nature and the plans could be that also. The gate model gives a good possibility and method to control a project phase by phase, without creating very strict timelines and rules in the beginning for the project. The gate model fits especially projects where the previous stage should be completed and requirements met before moving on to the following stage. /29/

Gate model gives strong support for communication throughout the project. When the project status is evaluated regularly and up-to-date information is actively shared with the stakeholders, confronting of possible need for changes and challenges comes up to awareness in time, which then gives time to react for grievance. /29/

2.7 Project objectives

2.7.1 Project success and achievements

Success should be considered as a process, not as a one target or line to cross. When mindset is built this way, it will make our actions and thoughts more structured and rewarding. It has a long-lasting impact by supporting our emotional health, which in-turn makes the maintaining of the habits and mindset easier. /9/

An important measurement for the success of a project is the capability to answer to the customer's request and via that achieve high level in customer satisfaction. To be able to achieve this, the project has to be able to produce and develop service activities, products and coherent solutions, which serve the customer in achieving the objectives in their own area of expertise.

Techniques used to determine success in project management are *planning*, *monitoring*, and *tracking*. To reach results according to project objectives, and to achieve optimal performance in a project, the refining of these techniques support strongly the final outcome. This will make it possible to meet predetermined requirements through the most efficient use of resources, within time and cost. To achieve success, it is vital to be able to do all of these things in reasonable way (*planning*, *monitoring*, and *tracking)*, not just recognize them. /5/

It is quite rare to meet a process and tools where one can clearly see that the goal is to ease up the actual work and make the employees´ daily work more effective. Too often processes and tools come across where its creator has been somebody "out of the area" and usually, unfortunately, results are also according to it – success and achievement are only a distant vision. First and the clearest embodiment of this kind phenomena is when the process and/or tools are recognized, but the usage is intensely reluctant and that the avoidance of the process utilization is as a common practice.

To get the techniques of *planning*, *monitoring* and *tracking* in to use, you have to create proper method for it and make it also attractive to use. This fact has strongly supported the research in the background when the light model is created and developed. *Planning*, *monitoring* and *tracking* are vital for the success of a project and project management, and that is why these elements should be included thoroughly when developing a new process for project management.

2.7.2 Project control

In accordance with the research objective, a new light model for project management which assists in achieving better productivity and better controllability of small projects requires especially a clear vision for the project control. To be able to keep functionalities and efficiency of the process in a high level throughout the project, it is vital to have a good plan and implementation strategy for project control. Having controlling in a good order, possible changes and grievances can be tackled inside the reasonable time frame when follow-up and tracking are continuous.

Changes occurring during a project can create problems and challenges, and thereby make the progress difficult. The most effective way to prevent uncertainties caused by changes is to apply effective and informative project control methods. An especially important aspect is to be able to separate inside a decent time frame, from the follow-up information, the overall situation and possible, emerging deviations in the project.

"The project controlling process is an *evaluative* process whereby deviations from planned events are reported and probable causes assessed. It is a *performance measurement* process by which corrective action is taken to alleviate the impact of these deviations and other unfavorable trends on project schedules, budgets, resources, or staffing levels. Project control is also a *quality assurance* process intended to maintain the technical performance standards of the product under development and to assure the quality of the product design". /5/

It´s important is to remember to confirm that the methods are applicable for the ones using the model and that the out coming information is useful and practical for the users and stakeholders.

As Kezsbom, Schilling and Edwards states:

"Controls should be simple to employ. Costly systems may be too complex and may not satisfy the objective of providing the minimum amount of information to the Project Manager when needed most for interpretation and decision-making. Remember, to ensure that a control system is employed it must be *useful* and *useable*". /5/

The controls created and used for project management should be built that way that it is possible to create reports timely basis, which enables to react in reasonable time to deviations from plans to prevent these to escalate into a severe problem. This is not necessary always that simple to do. Reports can be produced too frequently or too seldom. If the report is done too often, the content usually is quite meaningless, non-valuable and if it's done too seldom, "contact" to the project flow can be lost. /5/

"Operationalize control systems. "Fit" them into project organization. Give access to those members of the project team who need to interpret the data and who are capable of taking corrective action regarding the problem situations. Tailor the information to these people´s needs. Remember, establishing an effective control system also requires paying attention to the interpersonal communication subsystems that exist within the project, as well as to the roles and authority of the various project leaders and managers engaged in the exchange of project information". /5/

To achieve success in project management, in projects with technical features, should control of schedule, quality and cost of the work performed, implemented strongly as a part of the daily activities. /5/

2.7.3 Project reporting and documentation

If the success and achievements are important, it can be known and remembered mainly through good reporting and documentation. It is very important to take care of reporting and documentation, and especially of good reporting and documentation. A report and/or document should give all the relevant data and information for the reader. This is not always as easy and clear as it sounds. More and more reports can be seen made only because they have to be done, not for having the basic idea in the back of it - sharing information clearly and storing data for future usage.

The report and/or document creator should concentrate more on the content, instead of just including information on what in many cases is useless for the reader. The reader reads the report to get valuable and important data from the project, not because of the enjoinment to read. All the irrelevant data should be excluded from the report and the report should be kept it as simple, clean and clear as it can.

The best report model is the kind of which a management wants to read and understand the content easily. A status reports should present information and data, in a well-structured summary and the information should be given according to the stakeholder needs. /5/

"Documentation is a key feature of all formal processes. Documentation is a key process output, but it also facilitates the operation of the process, and it provides a means of assessing the performance of the process. All project managers are aware of the importance of documentation for effective project management". /2/

Good documentation can provide numerous benefits for project, such as:

1. *Clear thinking.* A focus on documentation can clarify the initial thinking process. If people have to set down their thinking in writing, this forces clarification of what is involved.

2. *Clear communications.* Documentation can provide an unambiguous vehicle for communication at any given point in time. If people explain what they mean in terms of design and activities, sources of uncertainty and responses, and in writing detail, the scope for misunderstandings is significantly reduced. This can be particularly important in communications between different organizational units or in client-contractor situations. Clear documentation can also be an essential part of making all threats and opportunities and all key assumptions clearly visible to all interested parties. A key role for any formal analysis process is the collective use of team input to a joint decision, drawing on a range of expertise as appropriate. Communication is a vital aspect of this process.
3. *Familiarization.* Documentation can provide a record to assist in a new project team members to ´get up to speed´ quickly. Staff turnover on a project can be a significant source of risk, which documentation helps to mitigate.
4. *A record of decisions.* Documentation can provide a record that explains the rationale for key decisions. In some industries (and for some careers), this may become a very important document if a decision goes badly wrong due to bad luck.
5. *A knowledge base.* Documentation can provide a record that captures corporate knowledge in a manner useful for subsequent similar project teams. If the kernel of the thinking behind one project is available in a readily accessible form for those doing the next project, the value of this information can be very great. Such information can also be the basis of ongoing training as well as an individual learning tool, and a basis for fundamental research. /2/

The key underlying purpose of documentation is to integrate the expertise of teams of people so they can make effective, collective decisions based on clearly articulated premises. /2/

2.8 Creation of the new process

Project management methods and functions should be made specifically to fit to the specific organization´s structure and culture, by taking into account the diversity and uniqueness of the projects, to be able to achieve better efficiency for the usage of the company resources. Suitability of the project management procedures and tools is one of the challenges which organizations are confronting currently and should find a reasonable way to approach.

When improvement of the efficiency and clarification of the project management process is started, it is very important to define and be aware of the aspects in the current processes which have a real meaning and value for the entity of the different functions. When the main areas are defined, the evaluation phase for the improvement plan can be initiated. At this stage it should be considered how particular areas and functions can be implemented throughout the project at the most efficient way. Generally, the aim is development of the process and thereby, enhance the value of the process, and thereby value of the project and the final end product.

It also good to keep in mind that there are always challenges when implementing improvements to a process. Like E. Flanigan, J. Scott, and C. Carrigan states in their book:

“If this were very easy everyone would be doing it. Those that make process improvement work say that the rewards are worth the effort. Have realistic expectations for your first project. You should be prepared for a wide range of reactions from your co-workers, subordinates and supervisors. There is a pretty good chance that you will get some negative reactions. These reactions are mostly driven by fear of the unknown. You will probably hear comments like:”

- “That´ll never work here.”
- “They tried that before.”

- “You have REAL work to do.”
- “Are you trying to make us look bad?”
- “As long as you do it on your own time.”
- “That’s nice, but there is nothing we can do.” /3/

There will be different agendas for different people. There will be different priorities. Not everyone will share the same sense of urgency. In short, *expect difficulty!* /3/

Some of the people feel and confront changes more easy and in a more constructive way than others. Everybody should find a suitable method and mindset how to approach changes, because as nowadays changes in our environment have become more common and frequent compared to the past. The capability to handle and confront changes is beneficial for personal and professional growth and development. We should be actively adaptive when changes occur. /9/

The positive way to view change is to see it as an opportunity when having a challenge in finding a new solution. Being open and responsive to new circumstances are attributes well worth cultivating. /9/

When initiating the planning of the new project management light model, usability and functionality of the process should be taken as a starting point and one of the main targets to achieve. The current, as well the future, work and project environment is changing quite rapidly and it is becoming more and more challenging to get the best performance and efficiency out of the resources. The aim is to achieve a well-constructed process and model which would be easy to use, supporting the effort to get better performance and efficiency out of the available resources.

To avoid too extensive discrepancies from the existing project management process, the creation of the new light model should follow closely the current operating models, which are still to be used normally, alongside the new light model ac-

cording to the categories which are determined according to the project´s scope. The new model should follow the existing path, so there will be clear continuum for the existing and used environment and methods.

One of the main goals of the new light model, the more effective utilization of the resources, is sought to achieved by giving a clear template for the project management process, which at the same time offers the possibility and freedom to apply the given instructions and guidelines for each project independently.

Projects can differ quite much from each other by their scope, objectives and time. Process models used for projects should always more or less be tailored, but the base frame for the process model should be clear and unambiguous, so that it can be then fine-tuned for the specific project. The project process model should support all kind of projects. /1/

The other main objective of the new light model, i.e. usability and sustainability of the usage, should be taken into the development process. This way it is possible to guarantee the continuum of the usage and positive mind-set towards continuous usage in various projects. The more persons take the new light model in to use, the more it will be autonomously recognized and a well-known process in the project teams to be followed.

This comes in to question also when new resources are entering into the company and the aim is to generate and steer them towards a project orientated way of working and thinking. The guidelines and instructions of the light model should give clear overall picture on how projects, light or small in its scope, are handled or how it should be handled and what are the main phases of the project. Also, if a person enters the project team during the project, it will be much easier to get up-to-date information to share how the project is managed, what its current situation is, and what should be considered and ensured in the future operations. This way it should be relatively easy to adapt new resources to the company or a project team and elucidate the prevailing situation of the project. The outcome of this is

best possible performance and efficiency, as soon as possible, from the new resource.

“Modifying the organization means much more than merely changing the reporting structure or regrouping functional tasks and assignments. People enter into organizations with a variety of expectations. These typically include the need for professional respect, technical growth, affiliation, job consistency, and security. Organizational change must include adapting systems, processes, and procedures to the social requirements of its primary resource – *people*”. /5/

Clear project management guidelines and follow-up provides better foundation for a well together acting project team when all the participants have a clear picture of responsibility areas and the priorities of the tasks, working is much more fluent and productive.

As the guidelines and instructions should be clearly described, also assignments should be clear and unambiguous so that the persons, following the project progression, receives a clear picture of the status and are aware all the relevant changes. This will assist the team in performing in the most efficient way, while maintaining high standards and quality throughout the project and ensuring achievement of results and attributes defined in the start-up phase.

To get the project team to act at the most efficient way, information and data sharing has a significant role. The whole team should have knowledge of what is ongoing around them, what different persons have ongoing on and anticipate how it is possible to achieve good results.

To achieve better results and to be able to develop in a person´s own area, an organization has to learn and be adaptive to changes. Learning and developing of the operating models is a social process. All the involved participants in the organisation should be open for new perspectives and ideas.

The above-mentioned approach appears as a strong foundation and support for light model creation. The aim is to have a clear process and guidelines for both the author and the reader. Instructions should be unambiguous and transparent, and work as a guidance for the author on what kind of data is needed and in what form. The more projects use the created process, the more ease it will be look for information backwards in time from the stored data.

3 RESEARCH METHODS

This chapter presents the research approach, the methods for data collecting and how the collected data can be used.

3.1 Research approach

Research method types basically can be divided into two categories, quantitative and qualitative. /13/

Quantitative research "describes, indicates, and resolves problems by using numerical data. Emphasis is placed on the collection of numerical data/information. Conclusions can be made from the collected data by evaluating the correspondence/difference of the received information. /13/

"Qualitative research, on the other hand, is based on words, feelings, emotions, sounds and other non-numerical and unquantifiable elements. Qualitative research methods are interpretative and aim to provide a depth of understanding. It has been noted that "information is considered qualitative in nature if it cannot be analysed by means of mathematical techniques. This characteristic may also mean that an incident does not take place often enough to allow reliable data to be collected". /13/

Case study means research which is detailed study about the subject. A case study can be organizational, individual or a group´s of individuals, some event or action. Case research is one of the most effective methods for operative management and especially when developing a new theory or confirming existing theory. A case studies are normally qualitative, which study experiences, feelings and behaviour. Case study can be also quantitative or mix of both. A case study is used to explore certain phenomenon, it doesn´t give straight answers to what is causal for a certain problem or what is the impact of a certain problem. Case study aims to give wider knowledge about the studied phenomenon, and by that support the final target, to combine subjective and objective information to get deeper knowledge and under-

standing about phenomena. By using this collected data, improvement and enhancement can be made and implemented by using the data collected from study. /26, 28/

Case studies give opportunity for the researcher to *explore and detect* during the research, and so information and knowledge is collected constantly when the process is moving on. Case studies also give the opportunity to collect information from different sources in order to make it possible to get wider understanding of the studied objective. Case studies can support and confirm theory made from a particular area and via that, it can open new paths for additional studies when deeper knowledge is received to clarify earlier theories. /26/

One challenge in case study is that information received is often quite unique, which makes replicating difficult. It is also quite time consuming. A skilled researcher is needed to make it possible to get information extensively out from a limited amount of cases. Despite the challenges, case study can be very enriching for the researcher as well for the persons involved. It supports strongly operative development because of the practical approach and active involvement of people. Everybody has the opportunity to achieve growth during the process. /26, 28/

Action research has been recognized for its breadth as a field of research practice and its depth as a discourse of theoretical insight. Action research is a form of collective, self-reflective inquiry that participants in social situations undertake to improve. Action research is a case study methodology. /25/

Action research can be defined as “an approach in which the action researcher and a client collaborate in the diagnosis of the problem and in the development of a solution based on the diagnosis”. In other words, one of the main characteristic traits of this type of research relates to collaboration between researcher and member of organization in order to solve organizational problems. /14/

“Action research aims to develop practical situations and competencies of the participants without substantively prescribing objectives to be achieved. The general

aims of action research are frequently expressed in terms of process criteria (e.g. participation and emancipation) and it seems worthwhile to continue to stress these characteristics to differentiate action research from other approaches to understanding and creating social change". /25/

Action research is a very useful approach when the aim is to find solutions for the problems in the daily activities, without making any deeper requirements for the results and achievements. Action Research is a case study methodology.

Action study is a participatory study consisting of a spiral of the following self-reflective cycles:

1. Planning in order to initiate change
2. Implementing the change (acting) and observing the process of implementation and consequences
3. Reflecting on processes of change and re-planning
4. Acting and observing
5. Reflecting /14/

"The central problem with definitions of action research seems to be the potential incongruity between two of its key aspects – intellectual clarity and development orientation. So, it is important to consider how intellectual clarity (which seems to be necessarily exclusive at any given time) can be achieved without harming the overall development orientation that action research aims to promote and embodies itself (and which must necessarily be open to inclusions)". /25/

Generally, action researches are divided to three different categories:

1. *Positivist approach to action research* (also known as classical action research) perceives research as a social experiment. This approach concentrates to test hypotheses in a real environment

2. *Interpretive action research* (also known as contemporary action research) focuses on specifications of local and organizational factors when conducting the action research
3. *Critical action research* is a type action research which has a critical approach towards processes and target is to find improvements for these /14/

Applied research is also referred to as an action research, and the fundamental research is sometimes called basic or pure research. /13/

The major difference between applied and fundamental research is quite clear – findings from the applied research can be used to solve issues, whereas the fundamental studies are used to explore different kind of issues. /15/

The purpose of applied studies is closely associated with the solution of specific problems, while the goal of fundamental studies relates to creation of new knowledge or expansion of the current knowledge without any concerns to applicability. /15/

The objectives of the research in applied studies are set by customer or sponsors. The research aim is to solve some confronted issue or challenge. The aim of the fundamental studies is to add knowledge from a certain area and studies are normally quite self-orientated. /15/

Research validity represents an important point to be addressed in all types of studies. Nevertheless, applied studies are usually more concerned with external validity, whereas internal validity can be specified as the main point of concern for fundamental researchers. /15/

Validity of the research is confirmed by using the interviewed person's (see Appendix 1) native language and by using clear, unambiguous questions.

Reliability of this research is confirmed by interviewing multiple persons (see Appendix 1) and by using same main questions (see Appendix 2). Theoretical background is acquired from reliable and confirmed sources.

This research is carried out by the means of action research (applied research) methods. The aim is to find solution by doing a diagnosis of the current situation and possible problems and/or challenges in the process. A improved new solution and process is created based on the gathered information and experiences. The aim is to find a solution which activates the practical approach and supports effectively overall performing through the project.

3.2 Data collection methods

"One of the most important issues to consider when selecting a data collection method is the type of data to be collected. Some methods are more appropriate for collecting business impact data. Follow-up questionnaires, observations, interviews, focus groups, action planning, and performance contracting are best suited for application data. Performance monitoring, action planning, and questionnaires can easily capture business impact data". /18/

Using multiple data collection methods is tempting. Multiple data collection methods add cost and time to an evaluation and may result in very little added value. When multiple methods are used, this question should always be addressed: Does the value obtained from the additional data warrant the extra time and money that would need to spend on the method? If the answer is no, the additional method should not be implemented. The same issue must be addressed when considering multiple data sources and multiple time frames. /18/

The used methods for data collecting in this research are interviews, sectoral literature and made researches from the concerning area. Using these methods all the relevant and important data, from the quality and quantity point of view, can be collected to be able to make conclusions about "what is the status quo of the project management processes?"

Information collected from the interviews can be more valuable, than data collected from different records or data that is difficult share via written questionnaires or evaluation sheets. Persons can reveal stories and experiences which is are not recorded anywhere more easily, but which still are very valuable for the future activities and growth. /18/

The persons to be interviewed are from two categories (see Appendix 1). This is to get a clear and wide overview of the situation and experiences on the project management status.

Firstly, project managers (see Appendix 1), who has an extensive experience and vision of the current situation from the project management area and future objectives of the processes are interviewed.

Receiving input and opinions from the project managers in this research is very desirable and needed. This way it can be confirmed and made sure that all the valuable and meaningful aspects are considered, and there after included to the created new process and guidelines.

Secondly, additionally interviewed persons are persons who are managing smaller projects, but do not own necessarily a deeper education or experience from the project management processes. These are for example experts and engineers from different areas (see Appendix 1).

Interviewing additional persons, not only project managers, can offer deeper knowledge collected about the fact that why utilization of the existing processes, instructions and templates is not on the desired level, and how the utilization can be upgraded to higher level thereby achieving a higher level also in development of harmonization of the functions.

Usually the persons managing projects only occasionally are the ones who shun the given guidelines and methods to follow, thinking they are able to perform through the project more effectively and faster this way. Project managers on the

other hand, are the ones who are accustomed to following the created instructions, guidelines and practicalities, because this way the project stays in order and clear by its structure and the management of the project is also more effective and clearer because of the internalized routines.

The tools and processes created for project management stay in sustainable use when the utilization of it is constant and daily. If the utilization of the created tools and processes is left intermitted this will normally freeze the development of the current process, which will then lead back to square one and towards the primitive methods used in the past. Quite commonly, in some stage, can the following argument be heard ”this is how it is always done”.

Anonymity of these interviewed is taken into account to be able to ensure genuine and honest opinions of the prevailing situation of the project management and evaluating possible improvement needing areas objectively.

Also the old projects and examples from those are evaluated in meetings and discussions. The aim is to find some improvement ideas from the made errors and mistakes in order to be able to avoid similar problems and challenges in the future. Naturally it is also important stay open for completely new ideas as well.

Totally 8 persons were interviewed, 4 Project Managers, 1 Technical Manager and 3 Technical Experts/Engineers (see Appendix 1).

The interviews are held in two stages. The interviews at first stage is to get deeper knowledge about the current situation and so get the bigger picture on what is the status of the project management methods used for smaller projects and what is needed to improve the situation. The interviewed persons at first stage are managers (see Appendix 1).

The interviews at second stage aim to get feedback about the created light model and how it will solve and improve the management of the smaller projects. Also,

improvement ideas for the created process are handled. The interviewed persons at second stage are Engineers, Experts and Managers (see Appendix 1).

The interviews were held face-to-face in meeting rooms with the aim of open conversations. Quite often it has become apparent that persons are more open, transparent and genuine when the situation and atmosphere is positive for open conversations, instead of too formally organized situations for the interview. The information and data collected from this kind of conversations is more easily applicable for the process under development. Open conversation usually leads more easily towards the source of the problem and improvement and development ideas comes up basically automatically without any deeper or directive questioners. Open discussion leads more easily for example towards observations relating to practicalities. This way too formal approach and questions can be avoided, so the interviews can be held in more "straight forward" –attitude as a dominant feature in the conversation.

Interviews can be placed into two basic categories:

- A structured interview is much like a questionnaire. Interviewers as specific questions with little room for deviation from the desired responses. One of the major advantages of structured interviews over questionnaires is that interviews ensure that all the participants respond to all the questions and that the interviewer understands the participant´s responses /18/
- Unstructured interview allows the interviewer to probe for additional information. This type of interview uses a few general questions that can lead to more detailed information as important data are uncovered. The interviewer must be skilled in asking follow-up questions and probing for more information when needed /18/

Observations show that persons do want to share their personal opinions and give input, which they also experience as important, as long as the atmosphere and interview session is kept open and unformal for a new approach and opinions. Inter-

views held in this research follows quite strictly the unstructured interview category definition.

“One of the problems of sociological research in institutional settings is that interview respondents speak from the generalized and generalizing discourse. Even when they talk about their own work, they may move into their everyday competence in the ideological language of the institutional discourse. Such discourses are extraordinarily lacking descriptive content and can be largely useless to interviewers unless they are investigating the order of the institutional discourse itself”. /8/

Persons participating to questionnaire could be sometimes unwilling to answer. Sharing opinions via “paper sheet” doesn´t necessary attract, but if the same persons are participating to interview, concerning the same topic, could skilful interviewer get plenty of valuable information and opinions by setting right questions and in right form. /18/

Too aggressive or normative questions and approaching could lead more easily towards opinions or answers which interviewed find desired, instead of the opinions or answers what is valuable for the development of the process – the honest truth.

Formality of the conversation was kept open throughout the research and with the help of it to achieve the goal and find clear picture of the current situation and to get clarification on how the new project management model will find its way to concrete use, and above all to make project team work easier and efficient and thereby getting the lead time of the project more competitive.

The interviews were structured around these two research questions:

- What is the efficiency and value of the current processes in a small projects?

- What would be the minimum activities and documentation level to make it possible to run small projects through effectively and in good control?

Additional questions were used to clarify the status of the current situation (see Appendix 2).

4 EMPIRICAL APPROACH

4.1 Project management at Wärtsilä

Different kind of projects constitute about 50% of Wärtsilä business. Many professionals working in the project management area is vital and important for the success of the company. Projects can appear in different areas, sections, scopes and criticalities. Projects can be multicultural or concentrated only to minor areas or teams. It can be said that basically everything is more or less project orientated working in the company. Project management orientated culture is highly appreciated and supported through the whole company.

Project areas are divided into three main categories, *Customer delivery* -, *Product & Solution Development* - and *Operational Development projects*. Under these three categories are included several different project types.

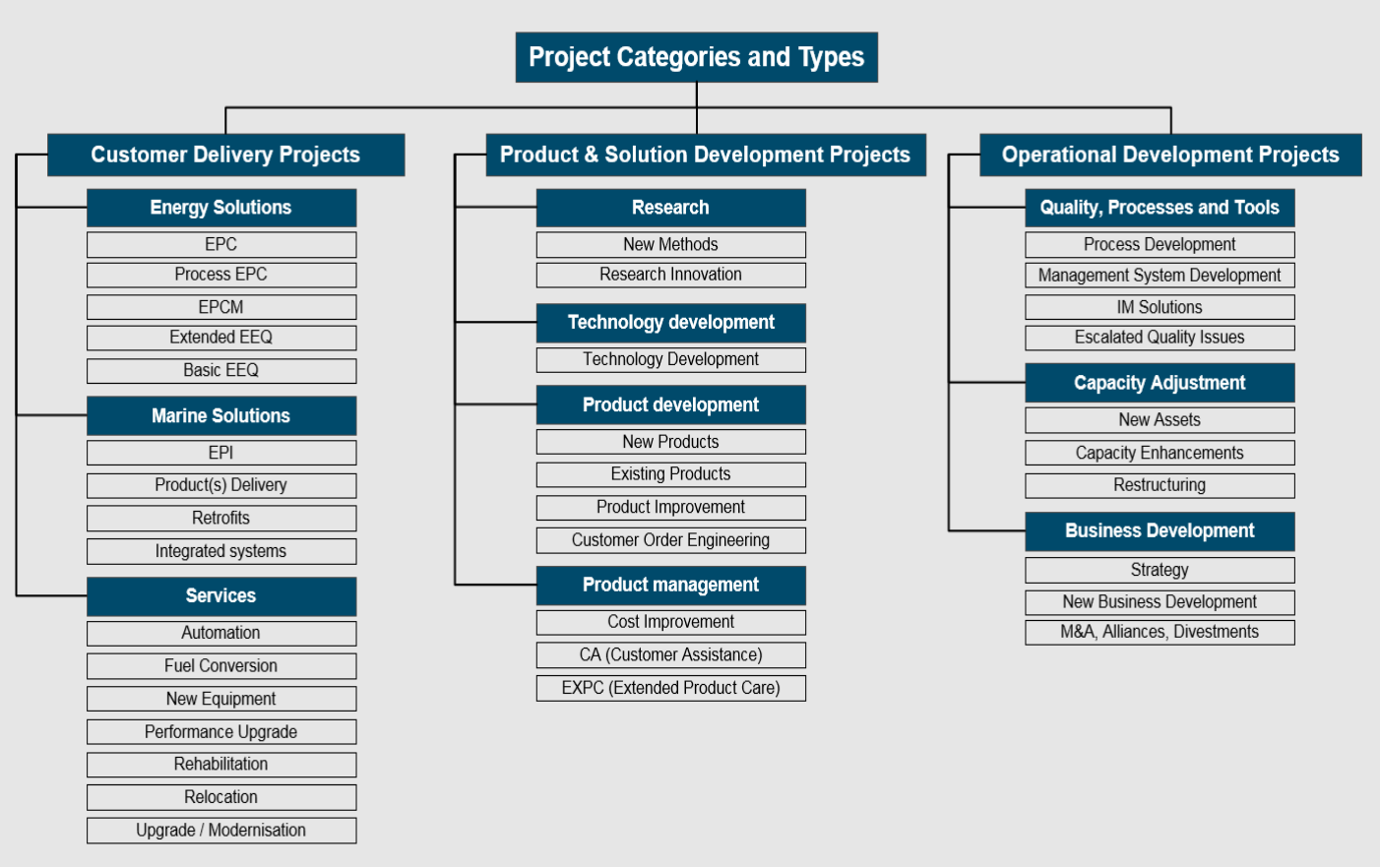
Customer delivery projects are projects relating to delivery of the power plant (different maturity levels), delivery of the engine or upgrading of the existing engine/solution.

Product & Solution Development projects relates to technology development and development of the completely new or existing techniques, solutions and products.

Operational Development projects relates to operational enhancement (i.e. development of the process, ways of working, quality).

Three main categories and sub-categories represented in Figure 3.

Figure 3. Wärtsilä Project Categories and Types /24/



Normally projects have their own definitions. Definitions can vary between different companies. When these certain definitions are fulfilled, a task or an assignment can be determined as a project.

When the below aspects are fulfilled, a task is determined as a project at Wärtsilä:

- Duration; temporary:
  - A project has defined beginning and end point
  - Note the “temporary” condition does not apply to the product, service or result created by the project (example: A project to develop a reporting system; the reporting system continues and is used after the project has ended)
- A project has specific goals
- A project deliverable is unique and non-repeatable
  - Note that the project can have repetitive elements as long as the product, service or result is unique (example: There are basic features for all power plants which are similar (repetitive elements) but each power plant is unique because of the different owners, different designs, different locations, etc.)
- Project duration > 2 months
- Project work effort > 50 man-days
- Project cost > 30 000 €.
- A project involves a team of people; (Persons involved > 2) /12/

Projects are also divided in three categories by its scope (A, B and C). The classification of a project defines the level of management and resources required for that project. The final project class (A, B or C) is based on complexity features and significance features.

Features related to project complexity and risk are:

- Uniqueness of project quality
- Internal customers and other stakeholder (several business lines and functions, different cultures and countries, etc.)
- Schedule
- Dependencies (external suppliers, subcontractors)
- Project environment and external issues (market situation, legislation, standards)
- Budget
    - A: >500 000€ (including internal work)
    - B: 500 000 – 50 000€ (including internal work)
    - C: 30 000 < 50 000€ (including internal work) /12/

Features related to project significance:

- Strategic significance (new market, new product, new strategic customer)
- Business benefits (operational savings, economical benefit, project concentrating to improving of the customer satisfaction)
- Business criticality and urgency /12/

In the end, the final decision concerning the chosen project class is always based on discussion. Thus, there is no formula that gives the final project class based on both complexity features and significance features. Based on the project is specific characteristics, the final project class is decided based on how much project management effort and resources particular project needs.

Wärtsilä uses the Gate –model for project management. The advantages of the Gate –model are among others, that it gives a good possibility to identify possible problems and to do assessment before go/no-go decisions.

Project main gates and definitions at Wärtsilä Finland, Technology Product Development are:

G0: Start project

- Agreement to start project

G1: Start planning

- Agreement on project scope and requirements

G2: Start execution

- Agreement on project plan

G3: Hand over – Start closing

- Acceptance of delivery and hand-over

G4: Close project

- Formal sign-off and project closure /12/

Different gates can be divided into the smaller sections as in category A and B projects (see Fig. 4. and 5.) to make it possible to manage more effectively the entire project. This is more common in larger projects, where it is reasonable to have more target points to evaluate project status. For smaller projects, unnecessary gates, for example G1, G2A and G2B, can be removed (see Fig. 6.).

Figure 4. Project Gates: Category A - Product Development Project /12/

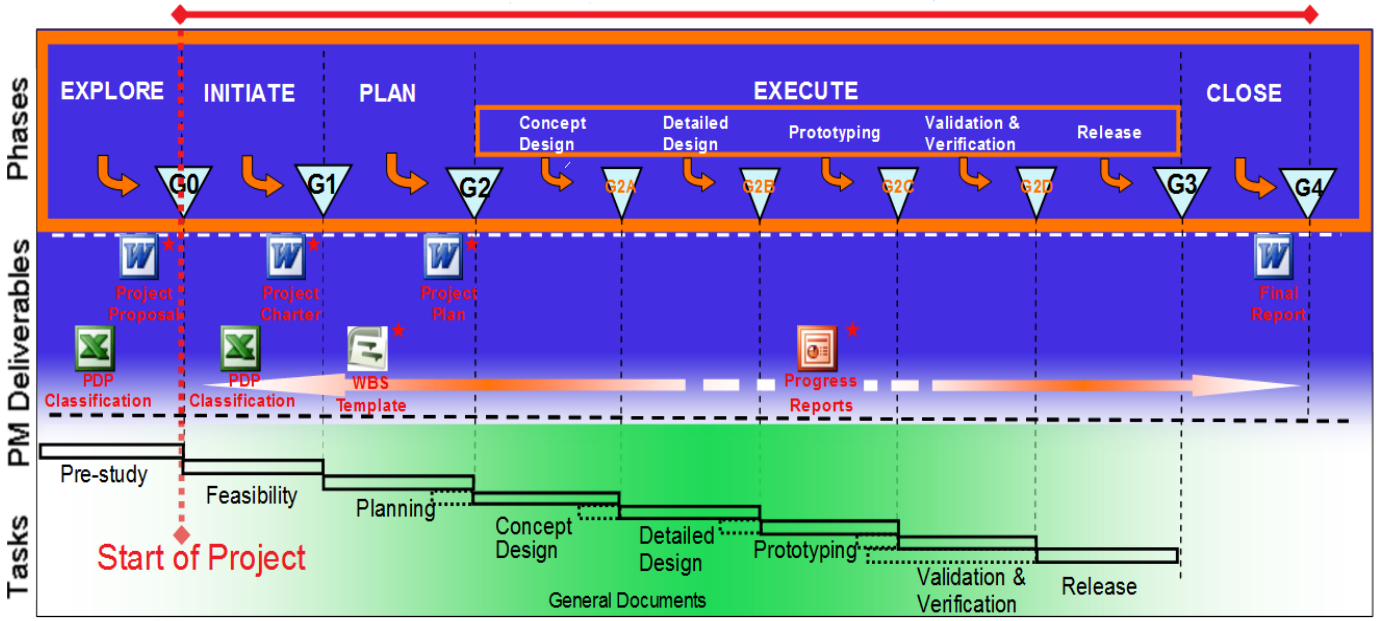


Figure 5. Project Gates: Category B - Product Development Project /12/

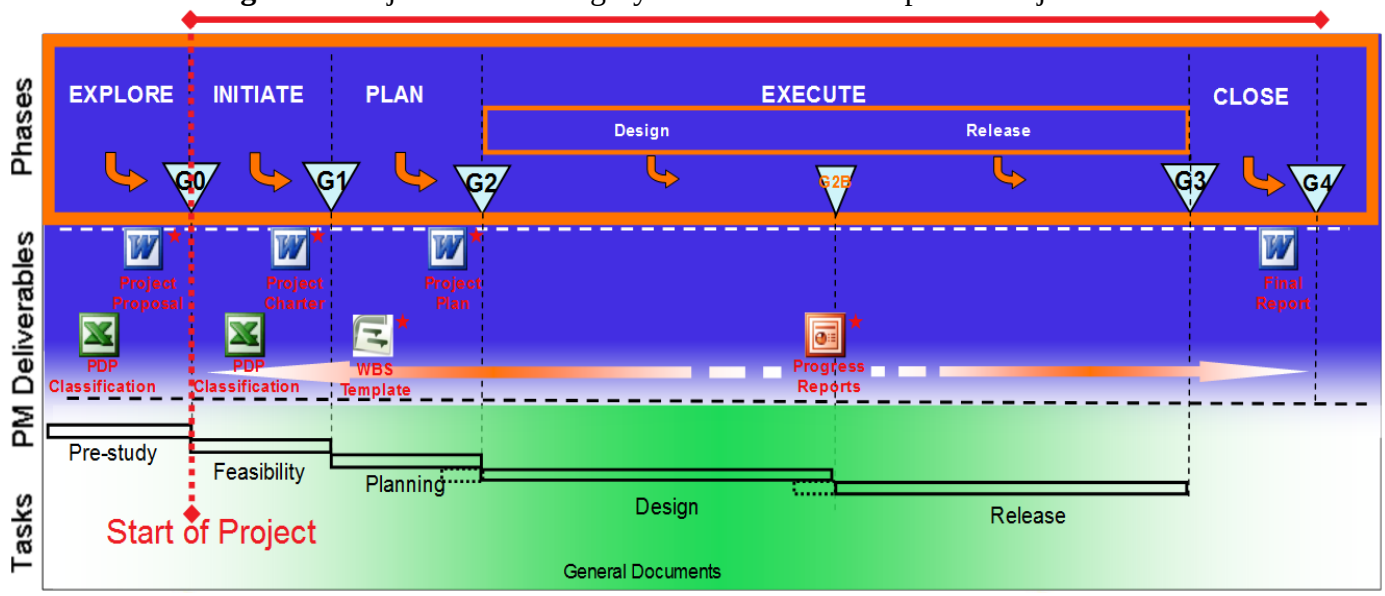
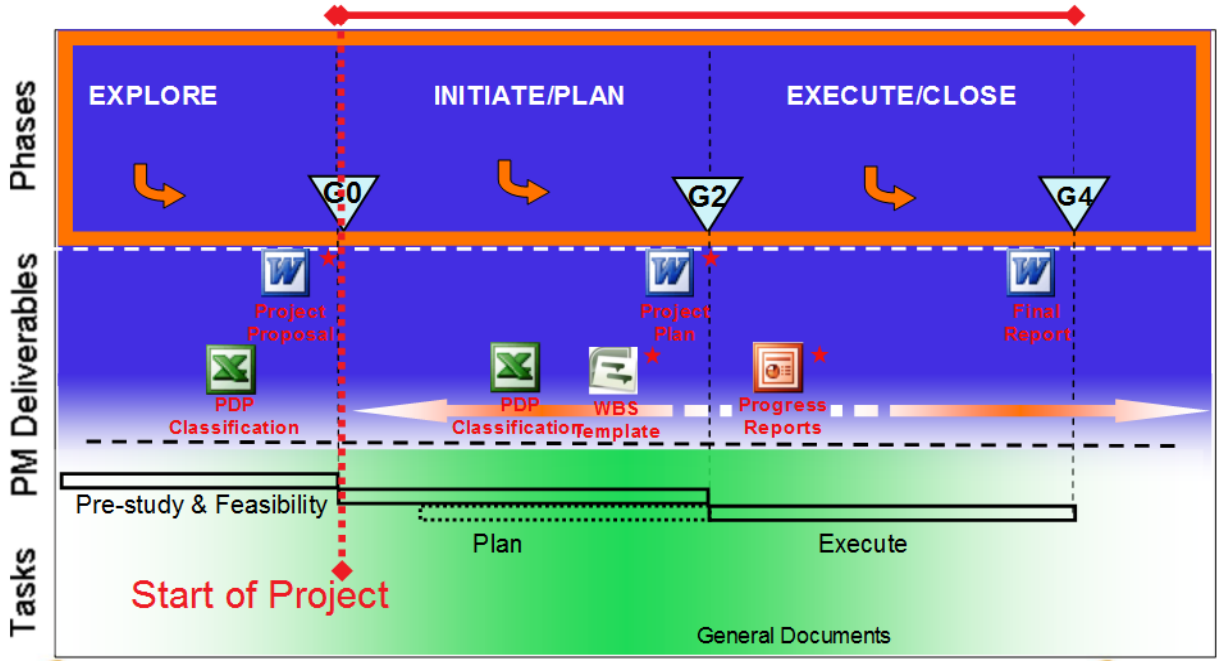


Figure 6. Project Gates: Category C - Product Development Project /12/



4.2 Evaluation of the current situation

The evaluation of the current situation is made based on first stage interviews and literature. Findings at this point from both the interviews and literature support the anticipated outcome and results.

As a result, it can be concluded that when interviews were held, topics expected to arise most was realized throughout the interviewed Managers (see Appendix 1).

Need for improvement of the performance and effectiveness is needed for the current processes. All these interviewed felt that currently the processes for handling smaller projects are not on that level where they should be. A clear process and way of working is missing and it would be good to have some kind of a frame of how to proceed for future projects, especially for those persons (i.e. engineers and experts) who are not actively using conventional project management tools and

methods. Quite often meeting memos are used to keep track of the ongoing tasks inside the project.

Quote from a Manager:

The current process doesn´t attract by its usability and it isn´t very effective for smaller projects.

Opinions relating to the usability and guidelines of the processes, as well as requested documentation and activity level followed mainly quite strictly each other. In generally it can be concluded that current processes and guidelines do not attract by their usability and that the requested documentation level does not apply for the reasonable level. Usually requested documentation is at the level which really does not give any further value for the project and process and it is noted that more concise documentation level, including all the relevant data, would be enough. After hearing and discussing the processes and guidelines, it can be stated here that old proverb “less is more” applies quite well in this situation.

All the interviewed Managers (see Appendix 1) felt that a rationalized and flexible process is considered much more attractive and more efficient way forward in the small projects. To implement a process in to daily use was experienced as attractive and it was felt that increasing the utilization of the new light model would bring clarity for the future projects when different phases of the process begin to recur through routines and experiences. Also, the traceability of the past projects would be easier and faster because of the transparent, clear and reasonable documentation level.

Quote from a Manager:

For smaller projects, process, guidelines and template should be as trimmed down as possible.

Follow-up of the projects would be easier by using a created template for the project presentation. When the template is regularly supplemented and the follow-up information is up-to-date, it would be much easier and faster to retrieve information and facts when a need arises, for example when up-to-date progress reporting towards the management is needed. The template would be also useful for example in a situation where a new resource has to be bring up-to-date about the project and ongoing activities. A clear template would give a good overall understanding of the project status.

Mostly employees who are rarely use project management tools calls for transparent processes and clear guidelines on how to proceed. This has been one of the goals to achieve with finalized light model.

Reporting and documentation was one of the major aspects when having discussion generally around the project management topic. Especially the quantity of the needed documentation was mentioned as a negative feature. Process and guidelines are somewhat unclear and the amount of the needed documents is on a too high a level. The quantity of the needed documentation should be managed to keep at a reasonable level, which will ease-up the review of the project data, during and after the project.

Literature and made research studies can be found quite easily from the area of project management and improvement of the project management processes. The variety is quite wide and especially the made researches are very specific for certain companies and sectors. Available information and data can be applied on a quite general level, but mostly new models, methods and processes have to be created specifically for the company and specific users. Processes and methods defined as functional and efficient in the other projects and/or companies are not automatically be as functional and efficient it the other projects and/or companies without extensive modification before implementing those to operations.

When made an overview through literature and researches, it could be noted quite easily that project management problems circulate mostly around the same topics. Despite the area and environment where the project and operations are made, problems seem to be quite similar. Especially when considering the matter from employee's point of view, mostly problems relate to time schedules and the given time to performing tasks, for expectations and goals are unclear and poorly defined, documentation is not giving a clear understanding of what has been done and what will follow.

These kind problems can be tackled with a proper and effective process and more and more it feels that this is observed around the world, in different areas of project management so that to have the most complicated and fanciest project management systems and methods are a heavy burden for all involved. It seems that it has finally been noted that it gives most value for all the involved that the processes used are created specifically to those who uses it and needs it in their activities.

The best process is the kind that want to use, not the one which just exists because of existence. More and more time and effort should be used to create processes for the ones who use them. This can be made by interviewing and discussing the topic with the persons involved in the process. The most valuable feedback and ideas come usually from the users. That should not be overlooked in any circumstances.

Literature follows quite strictly the thoughts that have been on the table relating to improvement of the process and performance. Literature supports strongly the observations made and lessons learned from the project management functions (/5/, /19, /25/).

When was made a research through literature, it was felt that opinions and experiences were surprisingly close to this research remarks and common consensus can be noted relating to the fact that project management processes could be, and should be improved, and especially among the people involved in project man-

agement intermittently. It seems to be noted that, when processes are created and developed, more attention should be given to the fact that processes are created for the most important resource – people. Processes should be created for use, by really taking into account the ones using them (/5/, /19/, /25/).

Reasonable and needed documentation level was also strongly raised up to be considered. As stated in this research, it is noted globally in other projects that too extensive documentation and non-relevant reporting is produced these days too often. More concentration should be used for the content, instead of quantity of the report or documents. Reports and documents should have a meaning and they should serve a purpose, thereby the purpose has to be unambiguous (/2/).

The main message that can be highlighted from literature is that the processes and ways-of-working should be improved and developed continuously by taking achievable steps, and all this should be done by following supportive and constructive methods, respecting all the people involved.

4.3 Introduction of the light model at Wärtsilä

The object and the main target is to get the new project management light model functional first in Platform Technical Management Medium Bore and after that, if necessary and the need arises, expand the usage of the new model to the other platforms (small bore and large bore) as well.

The new light model project management will be tested with the first possible project. The gathered information and experience can be then exploited for the development and enhancement of the created process.

The aim is to achieve, except a naturally functional and efficient process and also to create as user-friendly as possible, transparent and more attractive process to be able to ensure sustainable utilization, and the future development and improvement for the process as well. It is vital to remember that if the technology and sectoral methods are developing all the time, the process has to follow the develop-

ment as well. Above all, particularly in this situation where a variety of projects are handled with one model, the process and the guidelines should be adaptable and applicable by following developing environment.

The new created light model was decided to be tested with W7L32E2 project and with it introduced to personnel. The project objective was to expand the current W32E2 inline marine engine portfolio, which consists currently of 6, 8, 9 cylinders inline engines, by offering to include also 7 cylinder inline engine configuration into the engine portfolio.

The project may seem quite extensive at first sight, but in reality it is quite a small project by its scope because main deliverable is to add one cylinder configuration (7L) to the existing portfolio. Basically all the design, performance and components are the same that are used in other inline engine cylinder configurations. The only bigger concern, which could cause some extra activities, relates to engine vibration levels, which normally deviate somewhat cylinder configuration-wise.

Mainly everything will be just paper work. A especially classification and certification papers, manuals and sales tools have to be updated for 7L also. Still some measurements have to be carried out, for example vibration and performance data has to be confirmed.

The starting point is very good, because other inline engines have been on the portfolio and on the market for about four years. The collected information and experiences from this engine type is quite extensive at this point and possible faults are fixed already for this engine type, so the probability and risk for major problems is on a quite low level.

During the project feedback and possible improvement suggestions are collected from all the participants relating to light model process and template (see Appendix 3). This way the process and template (see Appendix 3) can be brought as close as possible to perfection when all the participants using the template (see

Appendix 3) can share constructive feedback and propose desired modifications and improvements.

The biggest concerns, aspects which needed most evaluating and attracted the most debate, relates to areas:

- Project documentation; storing and quantity
- Project scheduling; accuracy and tracking
- Project budget; accuracy and tracking

4.3.1 Project documentation and storing of the data

Documents are stored currently on to a *IDM documents database*, where basically all the information is stored from all the projects, assignments and activities. Even though the idea and basis of this database is good and clear, research recommendation is to improve significantly this database structure, to make finding of the reports from the past projects and activities more efficient, and to make the storing easier of the ongoing projects and activities. How this is done or how this should be done, is then completely different question and own development case.

The current situation is that most of the people know where the data is, but they can´t find it, so I would say that this database and the idea of it doesn´t really follow the basic idea and its purpose. I think this should facilitate employee's daily activities and make working more efficient, but now the structure of the system really doesn´t apply to that purpose. This is quite a clear area where some improvement and development should be made.

The light model creation handles this aspect from documentation quantity point of view. All the extra, unnecessary need for documentation is removed from the process, to minimize the amount of the documents to be stored. The light model template (see Appendix 3) includes instructive information about the needed data level from for certain areas. The requested information and data of the project is re-

duced a reasonable level so that it is possible to keep the shared information clear and traceable.

4.3.2 Project scheduling

Timetable/scheduling was kept quite simple. Although scheduling and timelines have an important role in project management, an accurate and precise schedule is not relevant for projects of this scope and category.

The first thought was to use MS Project for this, but it was experienced to be too precise for the light model. When the need is to have just a rare schedule which is easy to do and manage for all, MS Project felt too complicated. When evaluating the needed accuracy for the schedule, it was found that a weekly plan would be the optimal solution and accuracy which will be enough for managing such lighter projects.

A schedule can be created with MS Project, but for example Excel would be enough and more reasonable, as the goal is to keep the whole project and process simple. Excel is also more conventional and widely known, so it would be quite feasible for all to use. Most of people have Excel in use on their tools, but quite seldom a MS Project is used in non-project managerial personnel's activities. Naturally any software or environment/template would be applicable, as long as the content of it stays transparent and easily interpreted for all project team members and stakeholders.

4.3.3 Project budget

Project budget information is good to include to the light model template (see Appendix 3), even though it´s not so critical. These kinds of projects are usually critical in scope and the funding for it is normally estimated and well known in advance. Some deviation in the budget will not effect on to the project, because it is decided to do and it´s a "must have" -solution.

Data from the business case can be utilized for this to share the main points and structure of the budget. Budget information is recommended to share, but own judgement can be used to determine the need for the information and how precise information is relevant to share for the project team during the project. As stated, even if some wave –effect is noted in the costs, and especially an increase in the costs, the impact on the project execution is on a quite low level.

5 DISCUSSION

5.1 Discussion from RQ1 point of view

The objective was to research the prevailing situation around the project management processes, find challenging aspects and to create a process which is intended to empower persons to use it and by that, guide more actively towards project management tools and ways of working. The factors hindering performance and efficiency in the projects could be recognized and thereby improving features implemented to new light model. Instead of manipulating persons and forcing them to use the new process, the aim is to motivate and support daily activities. This way can be efficiency and value of the process to be improved. In this area the new light model (see Appendix 3) succeeded well.

A quote from a Technical Expert:

This would make managing projects easier and supports the controlling of the project. This is something I would like to use.

The introduction and testing period went well and the model was found to be very helpful and useful, especially to people who are not normally using project management tools (i.e. engineers and experts), this felt as a transparent and effective approach for controlling a small project.

All those interviewed (see Appendix 1) liked the simplicity and transparent guidelines for the project management. Especially persons in non-project managerial positions (i.e. engineers and experts) liked and felt the new process to be reasonable and way-forward when considering implementing the project management tools and operating principles into the daily activities.

A quote from a Engineer:

Usually processes and tools are a bit complex to be used occasionally, but this very easy to take in use, especially when not using daily basis project manage-

ment tools. This doesn´t need extensive study every time taken into use, cause the instructions are clear and well guiding.

Commenting around the usability and structure of the new light model (see Appendix 3) was positive and most of the persons (see Appendix 1) would think that implementing this to daily activities would support achieving more effective approach in small projects. All those interviewed felt that process and template (see Appendix 3) is very clear, transparent and easily applicable for a variety of projects.

Some of the experts and engineers (see Appendix 1) could find right away some examples where they could have and would have been taken the light model into use, if that had been created earlier.

A quote from a Technical Expert:

If light model would have been available earlier, I would have been used it.

Experiences and feedback was mainly very positive. Some changes and updates was implemented to the light model template (see Appendix 3). Some duplication was removed and unnecessary tables was fine-tuned or removed. For example, *requirements*, *risks*, *quality* related targets were handled in too many contexts and some these were too accurate in their parameters.

When the new light model is taken actively into use, project managers can use more effective of their time for larger and more demanding projects. Persons not currently using project management tools, can be guided towards more orientated and harmonized way of working when managing projects.

5.2 Discussion from RQ2 point of view

All the aspects were considered very carefully during the evaluation process, because the aim for the final solution was, as mentioned, to get rid of everything which is concerned as a non-value adding components and by that raise perfor-

mance and efficiency to a higher level. Many aspects and points could have been left to the final template (see Appendix 3), but then it really wouldn´t have served the final and desired outcome – to remove all the irrelevant, non-value adding components and sections, and by doing so lower also the needed resource and documentation level.

The template (see Appendix 3), and the instructions for it were created in such a way that all the unnecessary, non-valuable, activities and documentation was managed to reduce to a reasonable level. This way effectiveness and controlling of the projects will be much easier, when the need for the documents are set to decent, more manageable level.

The biggest concerns and conversations arise, as speculated earlier, around the scheduling and budgeting and especially the follow-up the schedule and costs (especially among the project managers). It was noted that persons working on daily bases around the project management processes, i.e. project managers, felt that more accurate and precise tracking of the schedule and costs would be maybe needed and the used time and resources should perhaps some how to implemented to conventional project management tools used in the company. This way some kind of a tracking can be held and it can more easily be seen when, what and who has been doing certain tasks. On the other hand, it was also discussed and concluded that if more accurate tracking will be added to the new process, the process would not be any more a light model, instead it would be step back towards the starting point and use of the old methods, i.e. conventional project management tools and processes.

A quote from a Project Manager:

More accurate tracking of the resources would be maybe needed, but in the other hand, it wouldn´t be light model after that.

As mentioned in the research, the purpose of the new light model is to ease up working and get the overall flow more effective, but the purpose is not to encour-

age people to cut corners or use their own customized way of working. The meaning of the light model should not be overtaken. All the operations, functions and guidelines have a purpose in the process, and it should be followed when having a project, which is at its scope to be managed by using light model as a process and guideline.

Some kind of a surprise can be held the fact that process and template (see Appendix 3) pleased most of those interviewed and clear approval could be sensed right away. I would have assumed that there will be wider disagreement between the project managerial and the non-project managerial opinions. Especially the simplicity and applicability of the light model received positive feedback from all, even though there were some concerns mentioned earlier. Consensus about the functionality of the developed light model was consistent. Maybe from the received feedback it can be concluded that this kind of a trimming or refinement could be performed more widely for several processes. This way processes and ways-of-working can be brought more broadly into consciousness and especially more effectively in use throughout the company.

A quote from a Project Manager:

Even thought, there are some limitations, this will support the management of the smaller projects and give good guidelines for wider group to be able to perform effectively through the project.

The adaptability of the new process inspired some thoughts. One of the concerns was that even though it is easy to remove project wise all the extra and/or non-value adding sections from the process, how easy it is to keep a way of working inside the created frame and to stick into the created and given guidelines. The fear is that by enabling too extensive changes, too aggressive tuning and adaption is done on the project wise. On the other hand, this could be done to any created process. One of the aspects from project managers point of view relating to this

was that this model probably works nicely in some smaller companies, but how will it survive in a bigger company like Wärtsilä.

6 CONCLUSIONS

As a conclusion can be said that the created process is functional, fills the purpose and it includes all the needed and relevant aspects to be able to perform effectively through the small projects. All the relevant data was managed to include into the light model, but also non-relevant aspects were managed to leave out after careful evaluation.

6.1 From theoretical point of view

The introduced theory (/11, /16/) supports the research outcome. Facts about the challenges when using conventional project management processes and tools for smaller projects were recognized and could be tackled, and by that was the new process improved from the start to avoid these similar challenges.

Challenges which occur during different kinds of projects, in different companies and countries, which are mentioned in literature (/11, /16/) could also be recognized during in this research and this could be taken into account when creating a new process.

The usability of the conventional tools and too extensive processes, mentioned widely in literature (/5/, /16/, /19/), was considered when creating the new light model. A new process was created by taking the end users into account better. This was to achieve more attractive and user friendly process, which hopefully supports better the persons managing smaller projects in the future.

6.2 From practical point of view

The light model follows company policy and it is made according to A-, B- and C -category management tools. This will ease up the implementation and usability when the essence and embodiment of the new process remains close to the existing processes.

The layout of the new light model template (see Appendix 3) seemed functional and clear. To keep similar appearance of the layout as the other category projects experienced as a natural continuum for the existing project management process.

The research could answer to main questions:

- What is the efficiency and value of the current processes in a small projects?
- What would be the minimum activities and documentation level to make it possible to run small projects through effectively and in good control?

The current processes (A, B and C -category) used for managing smaller projects was partly too complex and reluctant for the personnel to use it. Improvement for this problem was achieved when the new process was created for the project management.

When the new light model is in use, Project Managers can concentrate more to larger projects (A, B and C category) when engineers and experts can manage smaller projects with the support given by the new light model.

Usually there are always weaknesses in all newly created processes. Weaknesses in this kind of a light model can be held its applicability for all kinds of projects. This sounds good, and it is a good feature, but simultaneously it also means that some of the key features and functions can be left out of the process just because it is possible and the project team can consider these features or functions non-valuable or extra, even if they are not. It is important to indicate clearly why certain activities and guidelines are included in the light model template (see Appendix 3). It is valuable to have process which is applicable for projects at various types and scopes, but it could be too easily customized. As sometimes human nature takes control and it uses the easiest way to proceed.

Additionally, it can be said that if evidence shows in the future that this kind of behavior, intentional and continuous deviation from the process, the creation and

functionality of the light model should be questioned in general and evaluated more deeply why and when this kind of behavior occurs, and what procedures can be carried to improve the process.

A limitation of this research is the fact that research was done only in one company and especially in one department. It could be that the outcome and the results of the research cannot be implemented directly to some other company or department functions. Additional research would be needed to gain wider knowledge about the usability of this project management process for smaller projects. Better analyses for the process should be made after the light model has been use for some time. During the testing period only it is quite difficult to make any structured conclusion about functionality in different kinds of projects.

The ambition is to continue the usage of the light model and implement it strongly to future projects. After the light model has reached a reasonable level of usage and wider awareness has been reached, it can be distributed more widely to other platforms. Experiences and data collected from other platforms can be then used to develop the process further, if the areas and aspects included require it. This will then be its own case in the future if any need for that arises.

Always it is a good to remember that all the processes, guidelines, instructions and ways of working should be reviewed regularly and adjustments should be performed based on observations. When a review and the needed corrective actions are carried out regularly, normally fine-tuning is enough and this way aggressive changes and arrangements can be avoided. Also, such approach will keep up a positive atmosphere towards communal development and growth. Normally the most notable features causing negative thoughts, attitude problems and discrepancies are major changes, actions and re-arrangements impacting widely to a process and guidelines. If a process is experienced ready and perfect, the euphoria power the mind too strongly and the evitable follows: Development and growth stops.

Processes should be evaluated and improved all the time, but it should not be done too aggressively or without a clear meaning supporting it. Following good manners and remembering that improvements should support personnel in performing their daily tasks more efficiently is the right way towards success and new achievements.

REFERENCES

/1/ Alam, M. Daud, Gühl, Uwe F. Project management in Practice: A Guideline and Toolbox for Successful Projects. 2016. Springer-Verlag GmbH.

/2/ Chapman, Chris and Ward, Stephen. Project Risk Management. 2003. John Wiley & Sons, Ltd.

/3/ Flannigan, Eileen, Scott, Jon, Carrigan, Chris. Process Improvement: Enhancing Your Organization´s Effectiveness. 1995. Course Technology Crisp.

/4/ Kerzner, Harold. Project management: a systems approach to planning, scheduling, and controlling. 2006. John Wiley & Sons, Inc.

/5/ Kezsbom, Deborah S., Schilling, Donald L., Edward, Katherine A. Dynamic Project Management. 1989. John Wiley & Sons, Inc.

/6/ Lewis, James P. Fundamentals of project management. 2006. AMACOM.

/7/ Martin, Charles C. Project management. 1976. AMACOM.

/8/ May, Tim. Qualitative Research in Action. 2002. SAGE Publications.

/9/ Olson, Deborah A., Kaye, Megan. Success: The Psychology of Achievement. 2017. DK.

/10/ Project Management Body Of Knowledge (PMBOK) –Fourth Edition. 2008. Project Management Institute, Inc.

/11/ Project Management Institute – PMI. Accessed 6.3.2018. https://www.pmi.org/learning/library/unique-challenges-managing-small-project-8439

/12/ Project Management Navigator. Accessed 25.7.2017 https://fiidm01.wnsd.com/kronodoc?action=start&action2=List+docs&project=122&root=1595311&currdir=2808174&docids=6346160&docversion=&lastversion=1&nodeselection=all&approvedversion=0&docprops=all&versionview=global&nouserprofile=1&norefresh=1

/13/ Research Methodology. Accessed 28.8.2017. http://research-methodology.net/research-methodology/research-types/

/14/ Research Methodology. Accessed 28.8.2017. http://research-methodology.net/research-methods/action-research/

/15/ Research Methodology. Accessed 28.8.2017. http://research-methodology.net/research-methodology/research-types/applied-research/

/16/ Rowe, Sandra F. Project Management for Small Projects. 2015. Management Concepts, Inc.

/17/ Miklosik, Andrej. Improving Project Management Performance through Capability Maturity Measurement. 2015. Science Direct.

/18/ Stawarski, Cathy, Pulliam Phillips, Patricia. Data Collection: Planning for and Collecting All Types of Data. 2008. John Wiley & Sons, Inc.

/19/ Stewart, Robert B. Value Optimization for Project and Performance Management. 2010. John Wiley & Sons, Inc.

/20/ This is Wärtsilä. Accessed 12.5.2017. https://wartsila.sharepoint.com/sites/compass/Business_Support/Communications_and_Branding/Brochures/Corporate_Brochures/Documents/This%20is%20W%C3%A4rtsil%C3%A4%202016.pdf

/21/ Wysocki, Robert K. Project Management Process Improvement. 2004. Artech House.

/22/ Wärtsilä Corporation - Financial Statements Bulletin. Accessed 12.2.2018. https://wartsila.sharepoint.com/sites/compass/Business_Support/Communications_and_Branding/Brand/Brochures/Corporate_Brochures/Documents/Financial%20Statements%20Bulletin%202017.pdf?csf=1

/23/ Wärtsilä Finland. Accessed 15.5.2017. https://fiidm01.wnsd.com/kronodoc?action=start&action2=List+docs&project=2662&root=1300830&currdir=4721251&docids=8433457&docversion=&lastversion=&nodeselection=all&approvedversion=0&docprops=all&versionview=global&nouserprofile=1

/24/ Wärtsilä Project Categories and Types. Accessed 25.7.2017. https://fiidm01.wnsd.com/kronodoc?action=start&action2=List+docs&project=2502&root=2815193&currdir=2601789&docids=9046914&docversion=&lastversion=0&nodeselection=all&approvedversion=1&docprops=all&versionview=global&nouserprofile=1

/25/ Zuber-Skerritt, Ortrun. Action learning, Action Research and Process Management. 2002. Emerald Group Publishing Limited.

/26/ Center for Innovation in Research and Teaching. Accesses 11.4.2018. https://cirt.gcu.edu/research/developmentresources/research_ready/descriptive/case_study

/27/ ToolsHero. Accessed 11.4.2018. https://www.toolshero.com/innovation/stage-gate-process-robert-cooper/

/28/ Voss, Chris, Tsikriktsis, Nikos, Frohlich, Mark. Case research in operations management. 2002. Emerald, International journal of Operations & Production Management.

/29/ Wuest, Thorsten, Liu, Ang, Lu, Stephen C.-Y., Thoben, Klaus-Dieter. Application of the stage gate model in production supporting quality management. 2014. Science Direct.

APPENDIX 1.

List of interviews					
Who	**Position**	**Day/Time**	**Transcription device**	**First stage interview**	**Second stage interview**
Honkela, Vesa	Project Manager	22.01.2018 (14:00 - 15:00)	Field notes		X
Humalamaa, Tapani	Chief Product Engineer	26.01.2018 (9:30 - 10:30)	Field notes		X
Häivälä, Jarno	Technical Expert	12.10.2017 (13:00 - 15:00) 18.01.2018 (13:00 - 14:30)	Field notes		X
Linna, Tuomas	Program Manager	22.01.2018 (14:00 - 15:00) 15.09.2017 (12:00 - 14:30)	Field notes	X	X
Lundström, Robert	Platform Technical Manager	12.06.2017 (12:30 - 17:00) 15.09.2017 (12:00 - 14:30) 12.10.2017 (13:00 - 15:00) 18.01.2018 (13:00 - 14:30)	Field notes	X	X
Mikkilä, Jukka	Platform Technical Expert	26.01.2018 (9:30 - 10:30)	Field notes		X
Nisula, Matti	Project Manager	22.01.2018 (14:00 - 15:00)	Field notes		X
Ruonala, Arto	Project Manager	22.01.2018 (14:00 - 15:00) 15.09.2017 (12:00 - 14:30)	Field notes	X	X

APPENDIX 2.

Main questions in the interviews	
1.	What is the efficiency and value of the current processes in a small projects?
2.	What would be the minimum activities and documentation level to be able to run small projects through effectively and in good control?
3.	How you see current situation for managing small projects?
4.	Is current process attractive for managing small projects?
5.	Would you like to use project management tools more actively?
6.	What would be the encouraging factor to get project management methodology implemented more actively in daily work?

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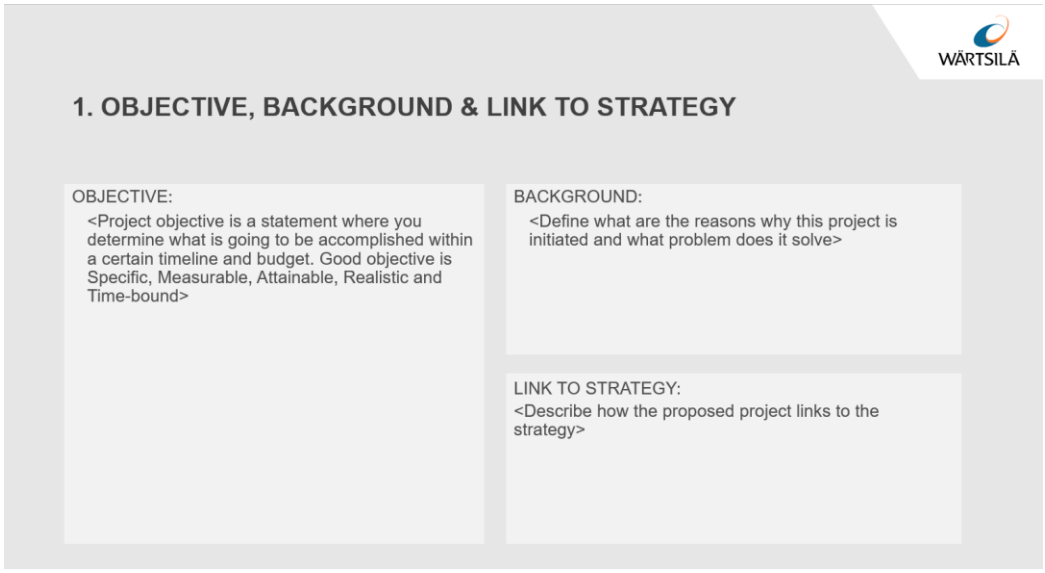
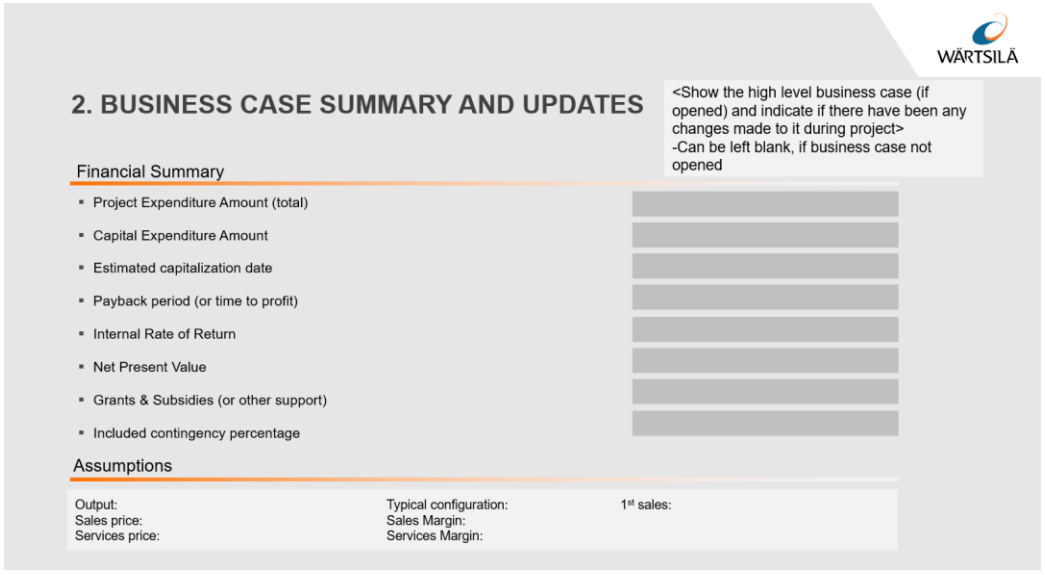
WÄRTSILÄ


WÄRTSILÄ
1. OBJECTIVE, BACKGROUND & LINK TO STRATEGY
OBJECTIVE:
<Project objective is a statement where you determine what is going to be accomplished within a certain timeline and budget. Good objective is Specific, Measurable, Attainable, Realistic and Time-bound>
BACKGROUND:
<Define what are the reasons why this project is initiated and what problem does it solve>
LINK TO STRATEGY:
<Describe how the proposed project links to the strategy>


WÄRTSILÄ
2. BUSINESS CASE SUMMARY AND UPDATES
<Show the high level business case (if opened) and indicate if there have been any changes made to it during project>
-Can be left blank, if business case not opened
Financial Summary
Project Expenditure Amount (total)
Capital Expenditure Amount
Estimated capitalization date
Payback period (or time to profit)
Internal Rate of Return
Net Present Value
Grants & Subsidies (or other support)
Included contingency percentage
Assumptions
Output:
Sales price:
Services price:
Typical configuration:
Sales Margin:
Services Margin:
1st sales:

WÄRTSILÄ

PLANNING PHASE

<Planning phase involves creating of a set of plans to help guide a project team through the execution and closing phases of the project. Planning is continuous action through the whole project>

WÄRTSILÄ

3. PROJECT SCOPE & DELIVERABLES

<Define the project scope: what is the end product of the project and which are the main deliverables the end product consists of. Mention also what is out of the scope >

WÄRTSILÄ

4. TO BE ENSURED DURING PLANNING PHASE

<E.g. procedures and reviews in the beginning of the project>

- Create SAP –number and cost accounts
- Create IDM folder for documents (for this PP -template, meeting memos, other relevant)
- Analyze previous experience and background material
- IP Plan (Intellectual Property): Patents, utility models, registered designs and technical specifications, drawings, manufacturing methods, know how
- Dependencies with other projects
- All related persons and stakeholders to be informed according to project organization diagram

WÄRTSILÄ

5. KEY REQUIREMENTS

<Present the key performance targets, product cost targets and other requirements that were set in the beginning of the project and show how well they are met in project execution>
-Colour the requirement green if the target was reached and red if the target was not reached

Key Parameters	Actual level	Target level	Acceptable level to close project

6.1 PROJECT BUDGET

Sum of cost	Fiscal Year			Total
Cost type	**2017**	**2018**	**2019**	**Grand total**
Engine hours	0	0	0	0
Human hours	0	0	0	0
Material	0	0	0	0
Other	0	0	0	0
Subcontracting	0	0	0	0
Subsidies	0	0	0	0
Travel	0	0	0	0
Grand Total	**0**	**0**	**0**	**0**
Cash out from grand total	0	0	0	0

<Show budget for the entire project in a table format. Option 5.1 or 5.2 can be used>
-Project estimate template can be used

6.2 PROJECT BUDGET

Sum of cost	Total
Cost type	**Grand total**
Engine hours	0
Human hours	0
Material	0
Other	0
Subcontracting	0
Subsidies	0
Travel	0
Grand Total	**0**
Cash out from grand total	0

<Show budget for the entire project in a table format. Option 5.1 or 5.2 can be used>
-Project estimate template can be used

WÄRTSILÄ

7. QUALITY TARGETS

<Show the quality targets for the project. Quality targets are typically targets which verify that all validation targets have been achieved, such as “no quality assurance risks open” or “all planned tests done and passed”>
- Criticality can be indicated as: ***Critical, Important, Moderate, Low***

Quality attribute	Target	Criticality	Met requirement
		Critical, Important, Moderate, Low	

Open issues:

- V2s
- PIP -case/Issue list
- Other

WÄRTSILÄ

8. MAIN RISKS

<List the most severe project risks, their probability, impact and mitigation actions. Risks can be e.g. technical risks, business risks or other kinds of risks that have impact on meeting project objectives. Also shortly analyse the current risk level in the project>
-Risk level can be indicated as ***low/medium/high*** or ***1, 2, 3, 4, 5*** or which scale is the most suitable for the project

Risk	Probability	Impact	Mitigation Plan
	Low/Medium/High	Low/Medium/High	
	1, 2, 3, 4 or 5	1, 2, 3, 4 or 5	

<Risk level analysis. Can the project proceed with identified risks?>

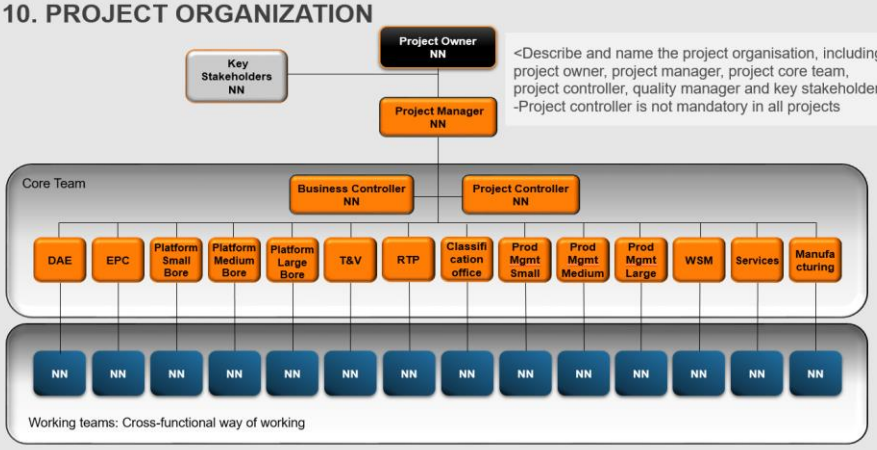
9. RESOURCE PLAN

<Show estimated resource need for the entire project, for example Excel can be used in order to visualize the resource plan>
- At least *Resource*, *Booking status* and *Allocation* should be mentioned
- Booking (commitment) status: ***Hard*** = Confirmed, ***Soft*** =Tentative

Resource	Booking status	Allocation
Person XX	Hard/Soft	Where, how much & how used

Line Manager verification
<Line Manager needs to confirm here the resource booking or identify the gaps>

10. PROJECT ORGANIZATION



<Describe and name the project organisation, including project owner, project manager, project core team, project controller, quality manager and key stakeholders>
-Project controller is not mandatory in all projects

EXECUTION PHASE

<In execution phase, physical project deliverables are build>

11. TO BE ENSURED DURING EXECUTION PHASE

<E.g. procedures and reviews during the project>

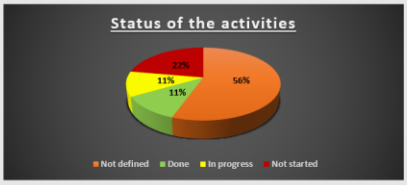
- Impact to Services
- Impact to Technical Information
- Impact to field engines
- Impact to existing stock materials and parts
- Impact to relevant purchasing group(s); to be informed
- HSE Evaluation checklist

12. PROJECT SCHEDULE

<Describe high-level project schedule. Schedule can be presented for example in Gantt chart format using MS Project or Excel (example below)>

Activity	Duration	Status	Progress %	Q1			Q2			Q3			Q4		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Activity 1		Done		w3											
Activity 2		Not defined													
Activity 3		In progress				w10		w19							
Activity 4		Not defined													
Activity 5		Not defined													
Activity 6		Not defined													
Activity 7		Not started								w27	w32				
Activity 8		Not defined													
Activity 9		Not started								w27	w32				

Total amount of the activities	9
Not defined	5
Done	1
In progress	1
Not started	2
Completed %	11%



13. PRODUCT MANUFACTURING AND ASSEMBLY

<Define high-level impact on manufacturing & assembly process (location, JV contracts etc.)>

14. QUALITY ASSURANCE

<List the status and open points from component/automation quality assurance, design review and validation plan. Also include links if available>

Decision and comments from the participants (can the product be handed over with the open points and is the person following the open points nominated in Product Group)

Links to templates:

1. Component/Automation quality assurance
2. Design review
3. Validation plan
4. Field follow-up plan

15. PUNCH LIST

Action	Person responsible	Due date

16. CONCLUSIONS AND RECOMMENDATIONS

Core team meeting:

- Date:
- Participants:
- Recommendation:
  - Approve/Postpone to date ddmmyyyy/On hold/Cancel
- Comments:

Approval forum meeting:

- Date:
- Participants:
- Decision:
  - Approve/Postpone to date ddmmyyyy/On hold/Cancel
- Comments:

<Additional comments>

CLOSING PHASE

<In closing phase, close the project and create a report its overall level of success and achievements>

17. TO BE ENSURED IN CLOSING PHASE

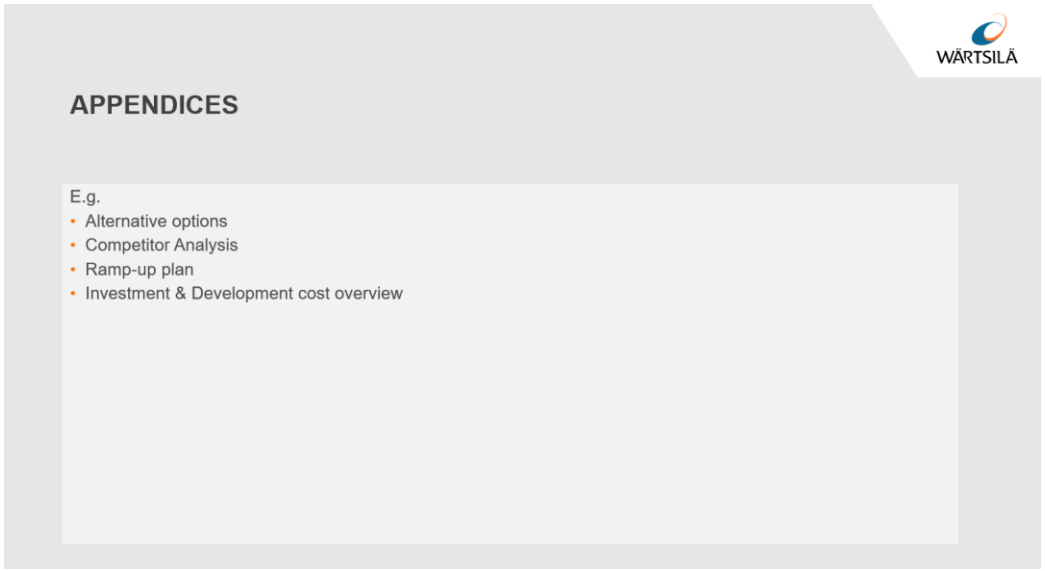
<E.g. procedures in the end of the project>

- Ensure all the cost control information received and completed
- Close all project accounts
- Ensure project documention stored in IDM
- Review needed updates to documents

18. LESSONS LEARNED

Category	Problem/Success	Impact	Recommendations

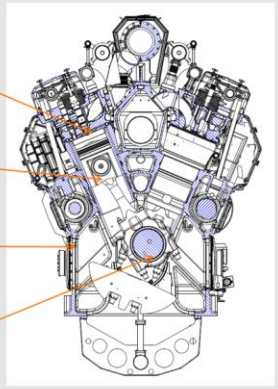

APPENDICES
OPTIONAL SLIDES


WÄRTSILÄ
APPENDICES
E.g.
• Alternative options
• Competitor Analysis
• Ramp-up plan
• Investment & Development cost overview

MAIN CHANGES

(Example of the changes)

Main changes compared to WXXXX-X



Fuel injector

New piston

Start of injection timing

Compression ratio

Output increased to xxx kW/cyl

No pilot fuel injection system

No gas fuel system

Gas convertible automation

Revision handling

Rev.	Date	Release notes